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AUTHOR Andrew, Erika Nielsen; Dornsife, Carolyn; Flack, Maggie; Hallinan, Mayo Tsuzuki; Jackson, Lola; Raby, Marilyn; Steadman, Mimi Harris

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ABSTRACT

The 10 chapters in this book provide an overview of 5 years of work by member schools and colleges in the Urban Schools Network, which provides technical assistance to schools in 31 urban areas. "Overview of the Urban Schools Network" (Lola Jackson) is a history, defining purposes, participants, and priorities. "Integrating Academic and Vocational Education" (Marilyn Raby) reviews features of and rationale for integrated curricula and provides examples from practice. "Work-Based Learning" (Maggie Flack) looks at how sites have developed programs with a focus on quality and connections to school learning. "Alternative Scheduling" (Mimi Harris Steadman) addresses a feature that has evolved as a key strategy at several schools to make time for innovative curriculum and out-of-classroom activities. "Whole School Change" (Mayo Tsuzuki Hallinan) traces the evolution across sites, from an emphasis on tech prep and integrated curriculum programs that affect some students to implementation of whole school change efforts. "Professional Development" (Mimi Harris Steadman) addresses strategies sites use to support reform efforts. "Guidance and Counseling" (Lola Jackson) provides snapshots of guidance programs. "The Postsecondary Partner" (Carolyn Dornsife) addresses sites' work to build links between secondary and postsecondary institutions. "Evaluation for Program Improvement" (Carolyn Dornsife) discusses the challenges, particularly tracking students within and between different programs and institutions. "Final Reflections" (Erika Nielsen Andrew) synthesizes lessons about school change applicable to any school reform effort. (Individual chapters include references.) (YLB)

ED 424 413

LESSONS LEARNED: FIVE YEARS IN THE URBAN SCHOOLS NETWORK

ERIKA NIELSEN ANDREW
CAROLYN DORNSIFE
MAGGIE FLACK ▲ MAYO TSUZUKI HALLINAN
LOLA JACKSON ▲ MARILYN RABY
MIMI HARRIS STEADMAN

NCRVE

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MIMI HARRIS STEADMAN

NCRVE

National Center for Research in Vocational Education ▲ Graduate School of Education ▲ University of California, Berkeley
2030 Addison Street, Suite 500 ▲ Berkeley, CA ▲ 94720-1674

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▲▲▲ ACKNOWLEDGMENTS ▲▲▲

The activities of the Network have been possible due to the assistance of many wonderful people. Our journey was inspired by the tremendous leadership of Charles S. Benson, former Director (1987–1992) of NCRVE. Charles held urban teachers and students close to his heart. During his years as NCRVE's director he provided a national presence, personal dedication, and compassion that defined the network and set a tone of dignity and decency for all to emulate. Since his passing, many Urban Schools Network sites have established scholarship funds and renamed buildings in his honor. His vision lives on.

Charles was assisted by the Network's first director, Ruth Katz. Ruth's enthusiasm and genuine concern for Network members laid the foundation for a network that was driven by the needs and ideas of Network members. Without her efforts there would have been no network. She provided for many educators a reason to keep going. Meanwhile, Lola Jackson and Marilyn Raby, both field consultants for the Network, built its infrastructure, criss-crossing the nation to work personally with each Network site. Charles, Ruth, Lola, and Marilyn provided the opportunity for all of us at NCRVE's Urban Schools Network to work with dedicated and talented educators from around the nation.

We also thank the Network Fellows who assisted Network teams through facilitation, technical assistance, and darn good advice. According to Network members, fellows made it possible to stay the course when many circumstances made it difficult to endure. Many more thanks go out to the current NCRVE director, David Stern, and the entire NCRVE office staff, who went out of their way to help us, especially Sally Hamaji and Iberia Todd, who helped design and carry out our many Network events.

Ultimately we thank the Network members for working with us for the last five years. You have inspired us to know all that we can about what it takes to support schools so that schools can best serve students. The Urban Schools Network has been a collaborative adventure in every sense of the word. To each person who has made it possible, we sincerely thank you.

Erika Nielsen Andrew
Carolyn Dornsife
Maggie Flack
Mayo Tsuzuki Hallinan
Lola Jackson
Marilyn Raby
Mimi Harris Steadman

Berkeley, CA
1997

▲▲▲ EXECUTIVE SUMMARY ▲▲▲

This is a publication about schools and institutions from our nation's largest cities. It captures, in one place, the collective lessons learned as a national network of schools and institutions engaged in reform around the idea of school-to-work. But it didn't start out this way. We began as a two-week residential summer institute for the development of integrated curriculum and Tech Prep programs. We became a five-year national network united by the desire to make schools better for all students. During this time our ideas about what it takes to do so have evolved significantly. And our ambitions have soared as well. Whereas we began with an interest in programs like integration and Tech Prep that often serve only some students, our thinking continues to evolve as we consider school-to-work efforts that involve all students.

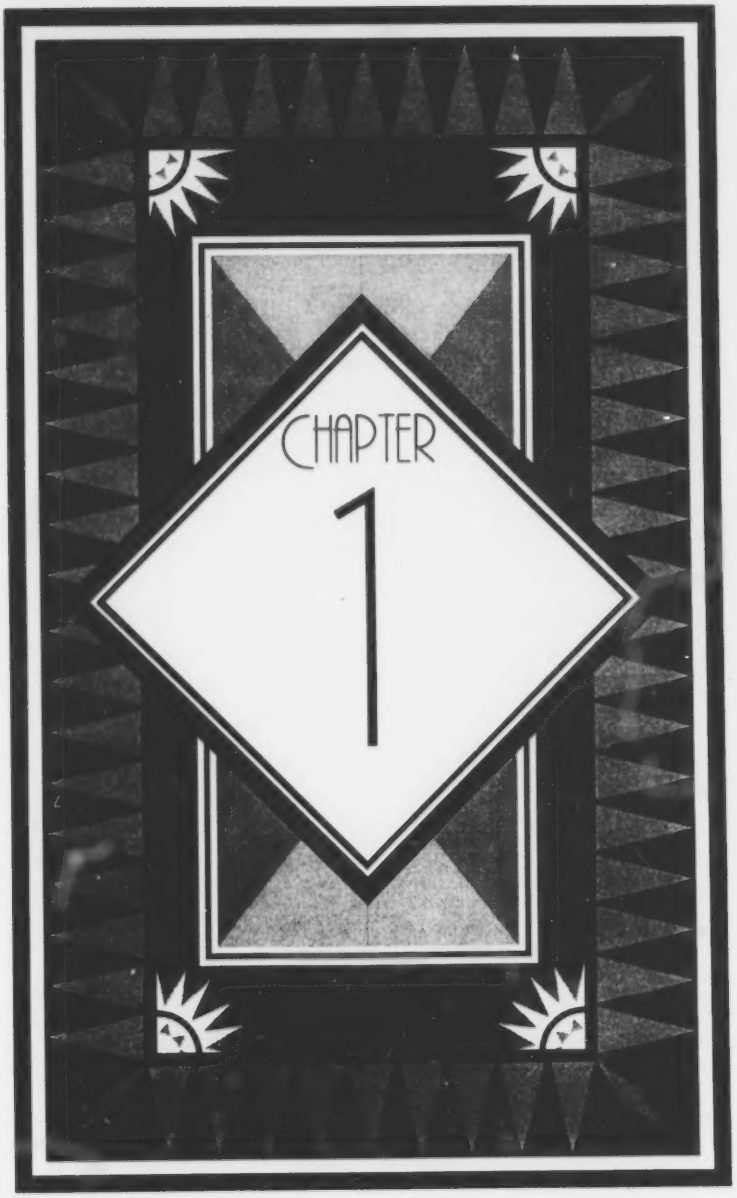
At its core this publication is about hundreds of extraordinary educators who have dedicated a significant part of their daily lives to improving education and future outcomes for students. We came to know these educators by sponsoring residential summer institutes, yearly regional meetings, and site visits, as well as through Network Fellows, expert practitioners, who provided technical assistance to the sites. These opportunities allowed us to assist schools and to learn together about their implementation efforts. In July 1997 we held one final meeting of Network members to synthesize our collective lessons after five years of work. We reconvened representatives from twenty teams to discuss topics that form the chapter titles of this publication. These topics represent the areas of greatest work in the Network. We wrote this publication to help educators engaged in similar reform work and to assist policy makers engaged in the design of effective legislation.

This publication provides an overview of five years of the work accomplished by member schools and colleges in the National Center for Research in Vocational Education's (NCRVE's) Urban Schools Network. Each chapter, written by NCRVE Berkeley staff and field consultants, varies somewhat in style and format, depending on the topic and the authors' work with Network teams. Some chapters address key priorities of the Network since 1992, while other chapters focus on more recent areas of emphasis.

Chapter One provides a history of the Network, defining its purposes, participants, and priorities. Chapter Two addresses the integration of academic and vocational education, a key area of concern for all Network sites. This chapter reviews the features of and rationale for integrated curricula and provides examples from practice. Chapter Three looks at how Network sites have developed work-based learning programs with a focus on quality and connections to school learning. Chapter Four addresses alternative scheduling, which was not an initial priority of the Network but has evolved as a key strategy at several schools to make time for innovative curriculum and out-of-classroom activities. Chapter Five traces the evolution across Network sites, from an emphasis on tech prep and integrated curriculum programs that affect some students to the implementation of whole school change efforts. Chapter Six addresses

professional development strategies used by Network sites to support complex reform efforts. Chapter Seven provides snapshots of guidance programs across the Network.

Along with fostering collaboration between academic and vocational curriculum and between schools and business partners, Network sites worked to build links between secondary and postsecondary institutions, a topic touched on in Chapter Eight. Chapter Nine discusses the challenges of program evaluation, particularly when trying to track students within and between different programs and institutions. Finally in Chapter 10 the current Director of the Urban Schools Network, looks back over five years of progress to synthesize the lessons about school change applicable to any school reform effort.


CHAPTER
1

LOLA JACKSON

OVERVIEW OF THE URBAN SCHOOLS NETWORK

▲▲▲ HISTORY ▲▲▲

In 1992 the National Center for Research in Vocational Education (NCRVE) received funding from the U.S. Department of Education to provide technical assistance to urban schools receiving funds from the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins II). Initially this technical assistance was intended to take the form of a two-week staff development conference in the summer of 1992. It soon expanded into the creation of a national Urban Schools Network. What follows is an overview of the evolution of the Urban Schools Network from 1992 through 1997 based on the legislative principles found in Perkins II and the mission of NCRVE.

Perkins II created the opportunity to transform urban education with a shift in funding toward areas of poverty and special needs. It authorized state and local programs to teach the competencies necessary to work in a technologically advanced society, and specifically earmarked funds for programs that address the needs of poor and handicapped students and those with limited English-language proficiency. States were obligated to spend this money on schools, area vocational centers, and postsecondary institutions serving the greatest number of disadvan-

taged students. Perkins II specified the integration of academic and vocational education—integrated curricula that aim at the development and use of problem-solving skills and basic and advanced academic skills (including skills in mathematics, reading, writing, science, and social studies) in a technological setting. Perkins II also specified the establishment of cooperative arrangements that combine two years of technology-oriented preparatory education in high school with two years of advanced technology studies at the community college (now called Tech Prep). The second Perkins Act was a significant response to what many viewed as narrow vocational education programs. Integration and Tech Prep are also linked to broader reform movements within education, including the various efforts to restructure schools.

The second Perkins Act was a significant response to what many viewed as narrow vocational education programs.

Most urban areas received substantially increased federal funding from Perkins II and were charged with developing programs to address the legislative requirements. Schools in the process of developing and operating new integration and Tech Prep initiatives faced a variety of instructional, institutional, and political problems. As a result, many urban schools needed further information about Perkins II requirements and examples of successful programs already in operation. They also needed technical assistance on strategies for implementation.

THE INITIAL PLAN FOR TECHNICAL ASSISTANCE: 1992 SUMMER INSTITUTES

At the same time that urban schools were starting to plan and implement Perkins II initiatives, NCRVE was devoting resources and time to the study of integration and Tech Prep. In keeping with NCRVE's mission of engaging in research activities that increase the access of all learners to high-quality college and career experiences, NCRVE applied for and received funding from the U.S. Department of Education to sponsor two technical assistance conferences for urban schools grappling with Perkins II. In July of 1992, the National Center for Research in Vocational Education conducted two national conferences, called *summer institutes*, in Berkeley, California. The first institute was titled "Establishing Tech Prep Programs in Urban Schools", and the second was titled "Establishing the Integration of Academics and Vocational Education in Urban Schools."

Requests for Proposals (RFPs) were sent to schools and colleges in the largest 200 cities in the country. Proposal respondents were asked to identify

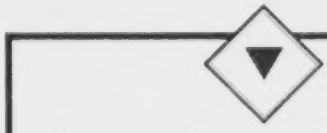
teams of ten to twelve persons, including vocational and academic teachers, a counselor, a local administrator, and a state administrator. From an impressive number of applicants, ten teams were chosen to participate in each institute. Integration teams were composed of individuals from one or two secondary schools. Tech Prep teams were composed of individuals from a postsecondary institution and its feeder secondary school(s). Among the first twenty cities represented were the metropolitan areas of New York, Los Angeles, Chicago, Houston, Denver, Cleveland, Baltimore, and Washington D.C.

The goals of the institutes were to:

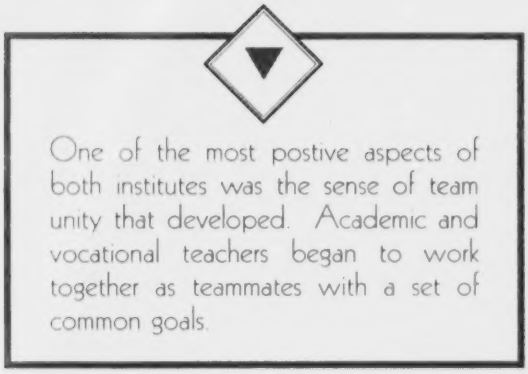
1. Create models of urban integration and Tech Prep programs and a network of developing programs in urban school districts.
2. Create a forum of exchange between individuals with extensive program development experience and those who were just beginning the process and establish teacher-to-teacher networks on integration and Tech Prep.
3. Help school- and district-based teams develop and implement plans for integrated Tech Prep programs for their schools and equip school- and district based teams with the resources and knowledge to serve as mentors to other schools in their areas.

TEAM PLANS

The major objective of the summer institutes were for each team to develop a strategic plan for initiating or continuing Tech Prep or the integration of academic and vocational education at its site during the 1992-93 school year. Teams were assisted in developing their plans by mentor teachers and graduate students. Mentor teachers were selected from exemplary programs around the country. Graduate students who had teaching or administration backgrounds were selected from the University of California at Berkeley's School of Education. During dedicated team meeting time, mentor teachers and graduate students assisted each team in establishing an organizational structure, designing required program components, involving key groups, devising a time line,



The major objective of the institute was for each team to develop a strategic plan for initiating or continuing Tech Prep or integration at their site.



One of the most postive aspects of both institutes was the sense of team unity that developed. Academic and vocational teachers began to work together as teammates with a set of common goals.

and monitoring results. Teams also attended workshops and presentations led by visiting experts (business and labor representatives, education researchers, practitioners, and other specialists) and mentors teachers. These sessions were intended to promote cross-team interaction and help all teams develop implementation strategies in the areas of business and industry partnerships, guidance and counseling activities, mentoring, internships, and the development and revision of curriculum.

One of the most positive aspects of both institutes was the sense of team unity that developed. Academic and vocational teachers began to work together as teammates with a set of common goals. Research has shown that team building among educators increases the possibility of risk taking and change occurring in a school (Saphier and King, 1985). A sense of ownership, a unified commitment, a collaborative climate, and clear goals helped to drive school-based teams to create successful change. Another positive aspect of the institutes was the support that participants reported experiencing from the state representatives who were part of the team. Teams also felt recognized and supported by U.S. Department of Education representatives and the business community members who took part in the institutes.

TAKING THE PLAN HOME

NCRVE envisioned that Summer Institute participants would develop strategic implementation plans for model programs, return home, and share their models with other local educators. Teams who participated in NCRVE's Institutes *were* energized by the experience and returned home ready to implement their plans for change. However, many teams were quickly frustrated in their efforts by circumstances at their school sites, such as inadequate retraining time and inflexible master schedules. In addition, resistance from staff members who did not participate in the summer institutes hindered the implementation of teams' plans.

CHAPTER 1

TECHNICAL ASSISTANCE: LAUNCHING A NETWORK

It was evident to the teams and to NCRVE that the schools who came to the 1992 Summer Institutes could not implement their plans without continued support from each other and from a main coordinating unit like NCRVE. Therefore, NCRVE launched the Urban Schools Network to support these schools in their integration and Tech Prep efforts. The Network brought together top-down and bottom-up reform, enabling NCRVE researchers to work hand in hand with expert practitioners in the field of urban high school reform.

The Network brought together top-down and bottom-up reform.

When developing the Urban Schools Network, NCRVE took into account the experiences of other school reform and restructuring networks. The design of the Network incorporated a model of teachers teaching teachers, a guiding principle of the highly successful National Writing Project, which originated at and was operated by the Graduate School of Education at the University of California at Berkeley. The National Writing Project was a staff development model based on a belief that classroom teachers are the most convincing consultants because their knowledge about effective teaching was based on their own experiences in real classrooms. NCRVE activities focused on teacher collegiality and collaboration, giving teachers the leadership and decision-making skills to recommend the restructuring of their schools or programs. Teams of teachers and other representatives were encouraged to review the organizational needs of their school staff, students and community and use that information as a basis for planning. Teams were guided by mentor teachers and other expert practitioners who later came to be known as the Urban Schools Network Fellows.

PURPOSE OF THE NETWORK

The purpose of the Urban Schools Network was to:

1. Equip schools and district-based teams with the resources and knowledge necessary to advance the implementation of curriculum integration, Tech Prep, and school-to-work efforts in urban schools.
2. Sustain a network through which urban practitioners, in coordination with local and state offices, schools of education,

and other partners, can continue to share expertise and learn from one another.

3. Investigate examples of the best practices in human resources, staff and program development, curriculum development and implementation, guidance and counseling, program evaluation, and business and community partnerships.
4. Create a forum of exchange between individuals with extensive program development experience and those who are just beginning the process through a range of teacher-to-teacher outreach and dissemination activities.
5. Promote and support the process of systemic reform in urban schools.

THE NETWORK'S TECHNICAL ASSISTANCE PLAN

The Network was built on a four-point plan of technical assistance:

1. Ongoing communication
2. Summer institutes and regional meetings
3. Site visits
4. Progress reports and team evaluation

ONGOING COMMUNICATION

Maintaining a national network required ongoing communication among member institutions and the coordinating agency, NCRVE. During the past five years, NCRVE Network staff stayed in contact with teams across the country by phone, fax, mail, and e-mail. Network staff were designated team managers for particular teams and communicated monthly with at least one liaison from each team. Team managers monitored site progress and responded to site requests for information and technical assistance. In addition, NCRVE Berkeley staff and other contributors produced the *Urban Update* newsletter, which was published twice a year and featured successful implementation strategies.

SUMMER INSTITUTES AND REGIONAL MEETINGS

Following up on the success of the 1992 Summer Institutes, two more institutes were hosted in Berkeley in the summers of 1993 and 1995. These events brought existing Network teams together, along with some new participants, for networking, learning, and planning in an intensive residential institute setting.

Regional networking meetings were held each year in cities close to Network sites, enabling larger numbers of Network members to attend. Regional meetings usually began on a Friday, to reduce the need for teacher release time, and included visits to Network institutions in the host city, as well as to other exemplary secondary, postsecondary, and work-based programs in the region. Like summer institutes, regional meetings featured workshops and presentations, often with a targeted regional focus, and intensive planning time and networking opportunities.

SITE VISITS

NCRVE Urban Schools Network staff, researchers, field consultants, and mentor teachers conducted monitoring visits to all sites during the first three years of the Network. Site visits consisted of meetings with team members, administrators, and staff at institutions represented on the team; meetings with district administrators; visits to classes and adjunct activities; and the development of recommendations for future actions to be taken by the team, district, or institution. NCRVE staff compiled a site evaluation report and shared it with the team following the visit. The emphasis of site visits shifted in 1995 to a technical assistance focus. NCRVE staff, field consultants, and Network Fellows conducted site visits with agendas based on team needs and requests.

PROGRESS REPORTS AND TEAM EVALUATION

At the close of each summer institute and regional meeting, teams submitted copies of their implementation plans to NCRVE. Through written progress reports, sites were encouraged to engage in ongoing self-assessment and evaluation of their implementation efforts. Progress reports addressed areas such as the frequency and structure of team meetings; strategies to encourage cross-team communication; student identification, recruitment, and retention; community outreach efforts; identification of resources; program evaluation strategies; and materials produced during the school year. NCRVE staff reviewed progress reports and offered practical suggestions. Along with progress reports, teams were provided with structured self-assessment tools such as implementation checklists and surveys, and technical assistance in the area of evaluation for program

improvement. In addition, teams were encouraged to periodically review and revise the plans originally produced at the summer institutes.

A LOOK AHEAD

As the Network prepares to phase out, its focus has evolved once again. In the last two years, NCRVE staff, field consultants, and fellows have worked with Network members to consider connections with other initiatives at the local and state level that may complement existing delivery systems. Specifically, NCRVE has encouraged Network sites to align earlier curriculum integration and Tech Prep efforts with more recent reform efforts included in the 1994 School-to-Work Opportunities Act, the 1994 Goals 2000: Educate America Act, and other restructuring initiatives. NCRVE has assisted Network schools in making connections with organizations or networks such as the Southern Regional Education Board (SREB), Coalition of Essential Schools (CES), and Jobs For the Future (JFF). During the most recent Network meetings, NCRVE advocated that sites' plans include detailed approaches for combining reform efforts and affiliating with other organizations and networks.

In July 1997, NCRVE brought the Urban Schools Network members together for one last meeting. The purpose of this culminating activity was to celebrate the Network sites' five years of progress and to conduct focus group interviews to document their struggles and success. The focus group meeting, aptly nicknamed The Reflectathon, took place over three days, in Berkeley, California. During focus group discussions conducted by Network staff, field consultants, and fellows, representatives from Network sites reflected on their five-year journey with NCRVE.

Network teams confronted many barriers to the implementation of their plans. These obstacles can be found in many school districts but are particularly daunting in urban areas that are coping with large numbers of at-risk children and overworked teachers and administrators. Urban high schools have typically received fewer resources and have been excluded from the many education infrastructures that grew up around rural and suburban schools. Linkages with employers and connections with parents are more difficult to establish in areas of inner city poverty than in more affluent suburban areas. Nonetheless, over the past five years, even in the face of these contextual challenges, Urban Schools Network teams have developed innovative methods to address their needs for strong leadership, team and staff stability, teacher-focused endeavors, time to plan and learn, and assistance in the evaluation of their efforts. The chapters that follow include examples of how Network sites creatively addressed a variety of challenges in the reform process.

REFERENCE

Saphier, J. and King, M. (1985). Good seeds grow in strong cultures. Educational Leadership, (53), 67-74.

APPENDIX

NCRVE's Urban Schools Network*

1. AKRON (OH)
   - ▲ East High School
   - ▲ Community and Technical College of the University of Akron
2. BALTIMORE (MD)
   - ▲ Lake Clifton-Eastern High School
3. BALTIMORE (MD)

   Baltimore City Technology Team, including:
   - ▲ Mergenthaler Vocational-Technical High School
   - ▲ Baltimore City Community College
   - ▲ Baltimore Public Schools
4. BALTIMORE (MD)
   - ▲ Lansdowne High School (located in Baltimore County)
5. CHARLOTTE (NC)
   - ▲ West Charlotte High School
   - ▲ Central Piedmont Community College

*The sites above have participated in the Network at various times since 1992. Additional institutions not listed here have participated periodically in Network events.

6. CHICAGO (IL)
   - ▲ Morgan Park High School

7. CLEVELAND (OH)
   - ▲ Jane Addams Business Careers Center

8. CLEVELAND (OH)
   - ▲ Health Careers Center
   - ▲ Cuyahoga Community College

9. DENVER (CO)
   - ▲ Fred N. Thomas Career Education Center

10. DETROIT (MI)
    - ▲ Detroit Public Schools
    - ▲ Henry Ford High School
    - ▲ Golightly Career and Technical Center
    - ▲ Breighaupt Career and Technical High School
    - ▲ Highland Park Community College

11. HARRISBURG (PA)
    - ▲ Harrisburg High School

12. HOUSTON (TX)
    - ▲ MacArthur High School
    - ▲ North Harris Community College
    - ▲ Aldine Independent School District

13. INDIANAPOLIS (IN)
    - ▲ Arsenal Technical High School

14. LAS CRUCES (NM)

    Doña Ana Tech Prep Consortium, including:

- Las Cruces High School
- Hatch Valley High School
- Oñate High School
- Mayfield High School
- Doña Ana Branch Community College

15. LOS ANGELES (CA)

- Health Careers Academy
- Marshall High School
- Los Angeles Unified School District

16. MILWAUKEE (WI)

- South Division High School
- North Division High School
- Milwaukee Area Technical College

17. NASHVILLE (TN)

- Maplewood High School
- Volunteer State Community College

18. NEW ORLEANS (LA)

- L. E. Rabouin Career Magnet High School
- Delgado Community College

19. NEW YORK (NY)

- George Westinghouse Vocational and Technical High School
- New York City Technical College

20. OKLAHOMA CITY (OK)

Consortium to Restructure Education through Academic and Technological Excellence (CREATE), including:

- Edmond Public Schools

- Putnam City Public Schools
- Deer Creek Public Schools

20. OKLAHOMA CITY (OK))

- Crescent Public Schools
- Millwood Public Schools
- Western Heights Public Schools
- Francis Tuttle Vocational Technical High School
- Oklahoma City Community College

21. OKLAHOMA CITY (OK)

SOAR Consortium, including:

- Metro Area Vocational-Technical School
- Oklahoma State University OKC Branch

22. OMAHA (NE)

- Bryan High School
- Omaha Jobs Clearing House
- Metropolitan Community College

23. PHILADELPHIA (PA)

- Lincoln Comprehensive High School
- Community College of Philadelphia

24. RALEIGH (NC)

- Sanderson High School
- Wake Technical Community College

25. SEATTLE (WA)

- Chief Sealth High School
- South Seattle Community College

26. SOMERVILLE (MA)

- Somerville High School

27 ST. LOUIS, (MO)

- Gateway Institute of Technology

28. ST. PAUL (MN)

St. Paul Tech Prep Consortium, including:

- Humboldt Secondary Complex
- University of Minnesota at Minneapolis
- Inver Hills Community College
- St. Paul Technical College

29. TUSCALOOSA (AL)

- Central High School
- Shelton State Community College

30. WASHINGTON (DC)

- McKinley Penn Senior High School

31. WASHINGTON (DC)

- Phelps Career High School
- University of the District of Columbia

CHAPTER
2

MARILYN RABY

INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION

The integration of academic and vocational curriculum with its promise of raising both academic and vocational achievement, is a reform of significant potential for urban schools. In 1992 and 1993 the National Center for Research in Vocational Education (NCRVE) chose thirty sites that were receiving funds from the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins II) to participate in an urban schools network where they would receive technical assistance in implementing their programs. Perkins II stipulated that federal funds were to be used in such a way that students learned theory and application through a common instructional process. It further specified the use of integrated curricula that aim at, "strong development and use of problem-solving skills and basic and advanced academic skills (including skills in the areas of mathematics, reading, writing, science, and social studies) in a technological setting." The Urban Schools Network sites were introduced to a taxonomy of widely practiced methods of curriculum integration at NCRVE-sponsored regional meetings and summer institutes. These methods included applied integration, which incorporates rigorous academic content into vocational courses and introduces workplace applications into academic courses, align-

ing the curriculum horizontally and vertically, and thematic integration, which uses common themes in the academic and vocational courses to make them more interesting and relevant (Grubb, Davis, Lum, Plihal, and Morgaine, 1991).

INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION

The nationwide movement toward increasing academic course requirements has led to pressure on schools to make academic content an integral part of vocational courses. This is the simplest form of integration as it involves no institutional changes and can be done by the vocational teacher alone. It is widely used to reinforce basic skills, including remedial skills, in vocational and technical courses. At the same time there has been pressure to add workplace applications to academic courses to make them more interesting and relevant to the world of work. The curriculum series developed by the Center for Occupational Research and Development (CORD) for Tech Prep programs is a widely used example of the applied approach. The term *Tech Prep* refers to curricula developed at the secondary level in concert with the requirements for employment and for continuing education at the associate degree level. The Tech Prep Associate Degree Program (TPAD) provides continuity in learning, context and competency-based teaching; articulation between high schools and community colleges; and completion of the program with an associate degree from a community college (Edling, 1992).

In funding the TPAD Program, Perkins II required a four-year curriculum that articulated the last two years of high school and a two-year community college program in preparation for a defined set of occupations such as business, health, or electronics. The program moves beyond the usual high school/community college partnership arrangements into substantive curricular coordination. High school and community college teachers work together to provide vertical alignment of secondary and postsecondary courses, and wherever possible, integrate technology into the curriculum. The program provides a clear path to the community college and a continuation of the career program begun in the high school. This curricular alignment is designed to result in sequences of vocational and academic courses that reinforce each other. It was expected that this approach would reform the entire curricula rather than individual courses (Hull and Parnell, 1991).

Thematic integration is another way of integrating academic and vocational curricula in which separate disciplines use the same themes in their courses. Academic and vocational teachers remain in their departments and retain responsibility for their specific subjects. The teachers collaborate to support a

common theme and share information on how to support the theme in their disciplines. Many integration efforts focus on themes suggested by the workplace competencies specified in the widely cited, *What Work Requires of Schools: A SCANS Report for America 2000* (U.S. Department of Labor, 1987). Teachers commit to incorporating one or more of the skills in their teaching. For example; if the competency chosen is interpersonal skills; social studies students might study the labor history of an industry or the sociology of work, English students might read a Steinbeck novel and write an interpretive essay, and the vocational teacher might present a workplace simulation that shows the problems in teamwork that develop when people of different backgrounds work together or invite an industry partner to discuss diversity issues with the class.

Some schools use a form of thematic integration where core academic and vocational courses focus on an interdisciplinary project. A common format is the action-based project used in many career academies that combines course work from several disciplines to produce a product; such as a report, videotape, or newsletter. These projects represent a transitional approach for teachers who want to go beyond simple applied integration but are intimidated by the time and effort required to integrate several academic and technical subjects. Action-based projects require students to solve problems related to their career field through their own actions and with the support of others. Projects are designed so students can master skills by performing tasks that reflect the complexity of tasks done by adults. The basic premise of the action-based project approach to curriculum integration is that to be successful productive adults, students must be taught how to be purposeful problem solvers (Kierstead, 1994).

Other schools are developing more complex forms of thematic integration in which academic and technical content is not departmentalized but emerges from career topics or issues. At least two, but usually more, academic and vocational teachers align their curricula to teach related content at the same time during the school year. This approach often results in a curriculum that incorporates the Perkins II mandate that teachers instruct their students in "all aspects of the industry" so teachers and their students gain, "strong experience in and understanding of all aspects of the industry the students are preparing to enter." All aspects of the industry include planning; management; finances; technical and production skills; underlying principles of technology; and labor, community, health, safety, and environmental issues. Several NCRVE Urban Schools Network sites are closely connecting academic and vocational topics of their curricula with this approach.

School configurations, such as career pathways and career academies provide crucial support to teachers trying to integrate curriculum. Career pathway or career major schools integrate academic and occupational learning, and establish linkages between secondary and postsecondary educational institutions. Career

academies are particularly suited to integration because their school-within-a-school structure, teacher collaboration, and cohort scheduling are designed to foster interdisciplinary integration. Academies are developed around career themes such as health, business, or media. Their industry focus is usually determined by local employment opportunities and evidence of growing demand for such expertise in the workplace. The course of study in academy programs consists of core academic classes—English, mathematics, and science—combined with occupationally related classes that focus on the academy's career theme. Thematic integration is used to combine academic content with the technical skills required to enter the workplace. Strong ties to industry partners help identify concepts and skills that need to be taught so the academic and vocational teachers can dovetail their curricula and keep it current.

WHY INTEGRATE?

There are important reasons for schools to integrate their students' curriculum. First is the belief that integration will motivate students to improve their academic and technical achievement by making connections between what they are learning in school and what they will be doing in the workplace. Many students, especially those residing in disadvantaged socioeconomic areas with inadequate role models, need help to understand the connection between their schoolwork and the workplace to motivate them to work harder in school. When students can link their school's curriculum with real life, good jobs, and solving useful problems, studying hard begins to make sense.

Second, integration enhances the professional role of teachers. They get to shape their program and build a sense of community. To integrate curriculum, academic and vocational teachers must collaborate as a team to determine the outcomes they want their students to achieve, develop instructional strategies to enhance interdisciplinary teaching and project-based learning, and create methods to assess the progress their students are making. They decide class schedules and time allocation, determine how to incorporate technology into their classes, and work with postsecondary and business partners. Teachers become both specialists and generalists. Isolation is replaced by a collaboration that capitalizes on the strengths of a faculty.

Third, integration helps schools create meaningful partnerships with local industries. Academic and technical teachers learn from their industry partners which skills are needed on the job and then work together to incorporate them in their instruction. Employers express a need for competent workers who are computer literate; can read, write, and calculate; have basic competencies in technical areas and a strong work ethic; and are willing to learn. The school's

function is to give students this foundation by developing a curriculum that gives them the skills they need to succeed, so businesses can train them for specific jobs. Integration provides a model of how business can participate in high school education by supplying the kinds of motivation and incentives that teachers cannot and by stressing the variety of competencies that students need to master for their occupational futures (Grubb, 1995).

Fourth, integration facilitates the type of teaching and learning required for the jobs of the future. The course work simulates the high performance workplace with its cooperative mode of operation. Academic and vocational courses are modified to incorporate problem solving, initiative, cooperation, and use of technology, as well as to cover the required course content. Problem analysis and solution are emphasized. Students are asked to identify problems, analyze available resources, and develop step-by-step solutions. They are also exposed to the interpersonal skills that are required in the workplace.

INTEGRATING CURRICULUM IN THE URBAN SCHOOLS NETWORK

When teachers integrate curriculum, they begin by identifying the type of integration to be used and the disciplines to be involved. They decide whether integration will be limited to the use of common topics between the technical course and an academic course or if it will also involve simultaneous topics in several core curriculum classes. The amount and type of staff development required for teachers to perform effectively in this new mode must also be determined. Availability of library, computer, and course materials must be ascertained, so the team can connect outcomes with the curriculum materials and develop measurable assessment strategies. The process for curriculum integration ideally includes the following steps:

1. Establish broad program outcomes that meet academic and industry standards.
2. Outline the major student outcomes for each year.
3. Arrange the content of academic and technical courses in a logical sequence.
4. Include "all aspects of the industry" and employability skills included in the Secretary's Commission on Achieving Necessary Skills (SCANS).

5. Negotiate how to bring the different subjects together in a meaningful way.
6. Involve industry partners in each step.

Once outcomes are determined, clear connections can be made between curricular content, materials, and assessment strategies. Although standardized tests are used, individual student performance is often measured by accumulated performance such as portfolios, projects, and exhibitions. Portfolios have many advantages as a performance-based assessment in that they display problem-solving skills and the interdisciplinary knowledge used in creating the portfolio. Compiling the portfolio helps students prepare for life after high school by assessing and rethinking the strategies they used to solve the problems presented by the portfolio project. Portfolios give administrators, parents, and employers a positive image of integrated curriculum and the instructional strategies used by the program. Another innovative method is to use students' workplace experiences to create a meaningful context for assessment. Industry evaluations of student work can inspire effective ways for developing rubrics to judge employability skills and technical competency.

Schools are integrating curriculum to raise academic and technical achievement, encourage teacher collaboration, and expand linkages to higher education and employment activities.

Schools in NCRVE's Urban Schools Network are integrating curriculum for the same reasons as other schools: to raise academic and technical achievement, encourage teacher collaboration, and expand links to higher education and employment opportunities. However, urban schools have special needs. They also look to curriculum integration to help counteract a lack of student engagement, deepen knowledge, and give a sense of purpose to education, with the goal of reducing failure and dropout rates. Many students who go on to college also require help to lessen the need for remediation and the potential of dropping out. Another critical goal is improving the poor basic and work skills of new job applicants. Employers say an important cause of the disappearance of work in inner cities is new workers who are not dependable and lack basic literacy skills and a strong work ethic (Wilson, 1996). Urban Schools Network sites feel that their disappointing student achievement statistics obscure the truth about the potential of their students. They feel that if a better delivery system were found, their students could and would perform at higher academic and technical levels.

Urban Schools Network sites agreed that students who are disengaged from academic course work often find hands-on applications productive and interesting and that linking theory and application has promise for increasing academic achievement. Experience with successful school-to-work programs

shows that applied learning complements academic learning and engages and motivates students (Stern, Raby, and Dayton, 1992). The Network sites expect that integrating academic and technical studies will give a sense of purpose to their teaching. They felt that to accomplish this their students need to learn both theory and methods of applying it in chosen subject areas, and the employability skills required in the workplace. They realize that to excel academically, students need more than a desire to learn — they also need convincing reasons to work hard.

Most of the urban school teams that attended the first summer institutes in 1992 had little experience with integrated curriculum unless their schools had career academies or Tech Prep programs. The Tech Prep schools had begun to bring high school and community college teachers together to develop articulation agreements and coordinate curriculum offerings. Other schools had developed a few projects involving more than one department. Network teams were committed to curriculum integration conceptually, but they lacked the knowledge and skill to implement it in their programs. Most needed guidance to better understand the developmental process.

NCRVE's Urban Schools Network staff began by helping teams refine their goals and develop learner outcomes. The 1992 summer institutes included presentations designed to show how integration allows students make connections across academic and technical disciplines, and between school and work. Workshops demonstrated how integration can strengthen academic skills (mathematics, science, social studies, and communications), vocational technical skills (media, pre-engineering, and business technology) and employability skills (the ability to work in groups and use appropriate technology). Guidance was given in managing cross-cutting issues such as industry involvement, assessment, scheduling, and career guidance. The institutes built confidence in the teams that led to a commitment to try comprehensive forms of integration.

Since the initial summer institutes, Network sites have remained engaged in the development and use of programs that integrate academic and vocational education, and their curriculum development skills have grown steadily. The failure of past approaches to raise achievement has fueled their interest in curriculum reform. They are using integration to connect academic and technical content, improve academic and research skills of their students by using projects, and prepare students for the changing workplace through work-based learning. Although they realize that integration as an instructional delivery strategy does not appeal to everyone, their successful projects have encouraged increasing numbers of their colleagues. As they strive to improve, they are heartened by the way integration is bringing their faculties together and motivating their students.

EXAMPLES FROM THE URBAN SCHOOLS NETWORK

APPLIED

Young Aspirations/Young Artists (YA/YA) uses the arts as a bridge from school to career for inner-city youth. Located at L.E. Rabouin Career Magnet High School in the arts district of downtown New Orleans, the program began with a collaboration between Rabouin's commercial art teacher and a local artist and gallery owner. Together they developed a nonprofit organization with a highly qualified staff and board members that has guided YA/YA to international significance. Each year the program serves as a major testing ground for new artists. All students in Rabouin's art program can participate. YA/YA is also planning to select students from other public inner-city high schools. YA/YA provides training in commercial and fine art, offers entrepreneurial skills for art careers and creates chances for exhibition. The program models a key piece in successful curriculum integration efforts: a work place mentoring site that helps young people with almost no access to the art world achieve success through hard work and talent. Rabouin provides instruction in fine and commercial art, while YA/YA offers student internships in every aspect of the arts.

YA/YA provides students and other young artists individualized instruction in woodworking, painting, design, and fabric painting. Students participate after school and on weekends to work on large projects and single commissions. Their work has evolved from drawings of buildings in the central business district of New Orleans to creating the brightly painted furniture that is their trademark, slipcovering the chairs at the United Nations, and creating a commemorative Swatch brand watch. Students are invited to join YA/YA's professional guild to remain in the program after graduation. YA/YA's artistic and financial success has induced other professional artists and galleries to replicate the program in New Orleans and other cities. At the guild level, fifty percent of the proceeds from the sale of work goes to the student, thirty percent is placed in trust for the student's college education and twenty percent is returned to YA/YA for the purchase of supplies and materials.

The program expands the potential work force for the arts industry while addressing some of the problems that plague urban areas. Students have shown a genuine interest in, and motivation for, learning because the learning has meaning for them. Achievement improved (students must have a C average to participate in YA/YA) when students were given opportunities to work on projects that incorporated personal interests. Students have exhibited locally and in galleries all over the world, from the Czech Republic to Tokyo (Barker, 1996).

An impressive number of prominent people have purchased YA/YA student works. Although YA/YA rewards artistic skill, artistic interest, and professional design ambitions, the program emphasizes that students must understand that attitude and quality of work are the real keys to success. A student said that YA/YA introduced him not only to art but also to the business aspects of self-employment, while exposing him to opportunities not many like him are likely to enjoy.

TECH PREP AND VERTICAL CURRICULUM ALIGNMENT

An increasing number of urban schools are using postsecondary articulation to offer incentives for high school students to master appropriate academic and technical content through the promise of credits earned before they enter college. The expectation is that students' college entrance scores will improve and their need for remediation in college will decrease. Tech Prep teams are developing four-year (grades eleven through fourteen) applied academics curricula to meet community college standards. Students take a series of aligned secondary/postsecondary courses without fear of duplication. The courses are articulated vertically by the transfer of credits from the high school to higher-level institutions such as community colleges; technical schools; and, in some cases, four-year colleges or universities. In Tech Prep programs, articulation with community colleges is typically limited to high skill fields such as health, engineering, and business.

Almost all Urban Schools Network sites have articulation agreements with their local community colleges. Consequently, they expose many students to vertical as well as horizontal integration. Credits can be transferred between technical programs or institutions. Another important advantage of postsecondary articulation is that the collaborative relationship between secondary and postsecondary faculties facilitates the evaluation of nontraditional integrated high school courses by college administrators. This solves a major problem that confronts college bound students who have been enrolled in integrated classes.

Delgado Community College in New Orleans has divided its associate degree programs into occupational clusters that mesh with the city's high school career academies and Tech Prep offerings. They designed the clusters to fit the workforce training needs for metropolitan New Orleans. These include engineering/construction technology, maritime and transportation, business and information management, health care, public and social services, and New Orleans. The New Orleans cluster includes hospitality, culinary, performing arts, visual arts, and Mardi Gras (costume maker, doubloon producer, float builder, and parade organizer). Each cluster description provides information about possible occupations, salary range, workplace requirements for the year 2000, four-year baccalaureate programs, high school career academies, and school-to-work industry consortia.

Delgado and the New Orleans team designed an eight week "Tech Prep Summer Connections Program" that incorporated postsecondary classroom training, the high school career academies, and work-based learning opportunities in four career clusters; Architectural Restoration, Financial Services, Hospitality and Tourism, and Law Enforcement. The "Summer Connections Program" was funded through several grants received from industry. All students received three to six hours of college credit, high school carnegie units, and had a paid work-based learning experience. They also received other enrichment services such as career guidance and exploration, guest speakers, field trips, and mentors.

Detroit's Tech Prep Partnership 2000 is a consortium of community colleges, four-year colleges and universities, technical schools, industry partners, community-based organizations and the Detroit public schools. Its purpose is to make a concerted effort to collaborate with the city's high schools to provide access to postsecondary education. On-site college courses in English and mathematics are offered at Detroit high schools by either college staff or qualified high school teachers. The intent is to encourage inner-city students to graduate with college credit that is transferable to a community college, trade school, four-year college or university. Secondary and postsecondary agreements define the courses that meet college requirements, so students receive not only advanced placement but also advanced skills. To qualify for the program students must be in the eleventh grade and must have passed the state high school competency examinations.

Many urban community and technical colleges are required to focus a large part of their curriculum on basic skills that entering students should have already mastered. Detroit's middle college is designed to counteract this trend and to retain students in the postsecondary education program. The intent of the program is to increase the number of inner-city youth in challenging high skill, high wage jobs. Students can earn community college certification by the end of grade thirteen by taking college courses on their high school campuses. Emphasis is placed on student retention in advanced high technology courses. Computer-aided drafting, electronics, auto technology, and industrial production management are some of the course sequences offered. High school students may enroll in regularly scheduled college credit courses with other college students or in specially scheduled credit courses for high school students taught either at the high school or at one of the community college sites. Middle colleges show inner-city students, some of whom had no idea that college was an option for them, that they can be successful.

Baltimore City Community College (BCCC) is placing technology at the center of its integration efforts. In 1992 it piloted the use of interactive video technology. At present the college is providing college level academic and vocational courses to urban students through distance learning technology.

This articulated integration encourages students to accumulate college credits while in high school. In 1996 sixteen Baltimore City Public Schools were linked to the Maryland Distance Learning Network by interactive video technology. Advantages to Baltimore public schools include collaborating with the community college system to develop and deliver courses and curricula, facilitating shared development of mathematics and English instructional materials to strengthen basic skills, and sharing staff development programs. Courses are delivered in a more interesting manner, and low enrollment and specialty classes can be maintained. This sharing of faculty, facilities, and other resources reduces costs and avoids duplication of services.

THEMATIC INTEGRATION

Located in the heart of metropolitan Washington, D.C., McKinley Penn Senior High School typified inner-city education at its most challenging. Several years ago, the hundred-year-old building housed sixteen hundred students. By 1997 enrollment had dropped below seven hundred and the school was closed. In their five years of membership in the Network, the faculty struggled with a lack of continuity in the school's administrative team, resource constraints, and neighborhood and family circumstances that made it hard for them to focus on the best practices of teaching and learning. The team from McKinley Penn attended the 1992 Summer Institute on Integration with the express purpose of beginning a major restructuring effort to form an Academy of Integrated Media Studies (AIMS). Their goal was to integrate English, social studies, and media technology into a program that enhanced and increased learning in a real-world context.

The students entered the program in grade ten and engaged in a year-long survey of print, photographic, film, electronic, and cable TV media from a historical perspective. Each week, three days of theory were supplemented by two days of hands-on training in video production. English skills, essays, research, vocabulary, spelling, and oral presentations were coupled with media analysis and communication skills. World History was integrated into the program through the study of communications ranging from ancient Egypt to Europe, America, and the present global society. End-of-year outcomes included student knowledge of at least five forms of media; the inventors/developers of each medium, including country of origin; and impact of each on society, especially among African-Americans.

Classrooms were equipped with radio and television studio facilities through donations from foundations and National Public Radio (NPR). A radio producer came to the school twice a week to teach the students important aspects of broadcasting: public relations, creative writing, video recording, tape

logging, and editing. Students used computers to write their scripts. They edited and spliced tape and learned how to troubleshoot and make repairs. They became knowledgeable about current events and able to interpret news events that were of interest to teenagers. The emphasis on technology caused the teachers to restructure the content of some of the academic units. They began to question how technology was affecting the transfer of ideas and concepts since the delivery was so different from the traditional classroom setting. Their concerns stimulated a continuing discussion about "just what is it that students must learn, and how shall we teach it?"

Through their partnerships with local radio and television stations (National Public Radio, C-SPAN, Black Entertainment Television and the local Public Broadcasting Station), the team devised a strong interdisciplinary TV broadcasting program that met the technical and employability skill needs of their media affiliates. Students spent three afternoons—or ten hours—per week writing and producing a weekly news show as well as sports segments and talk shows that ran several times a day on Channel 28, the District of Columbia's public school systems station. Classrooms became a workshop in which students honed their academic skills, and the studios developed their new technical interests. Their teacher said:

> We designed the program to force them to accept the challenge of shaping themselves into "mass media communicators." At times this task clashed with the reality of being an inner-city youth. My young charges overcame these obstacles and in the process fashioned a course of study that allowed them to serve themselves, their school, and their community.

Students were evaluated on their knowledge of the forms of media, the quality of their broadcasts, and their ability to work together and form supportive teams. Their evaluation included understanding and accepting responsibility, initiative, problem solving, and flexible thinking. Students were deeply engaged in critiquing their own performance and coaching each other. Their criticism was never harsh. They made a real effort to build one another's confidence. When a student questioned why they always had to work from prepared scripts, they told her to try her segment of the broadcast without one. After she got stuck in several places, missed important passages, reversed references, and "ummed" a lot, no one needed to tell her how important writing skills were. Later she said, "I am who I am because broadcasting allowed me to take a leadership role. Because I learned to focus and do well in high school, I will have an upper hand when I get to college."

CHAPTER 9

INTERDISCIPLINARY PROJECTS

Network schools are experimenting with a variety of interdisciplinary projects. These range in scope and duration from short-term class projects, to senior projects, full-scale projects that last a substantial time, and projects where boundaries are erased and several disciplines coalesce around a single topic. Senior projects usually consist of a career-related formal research paper incorporated into the senior English curriculum. Students must design and construct a tangible product related to their vocational program and make a formal presentation to a committee composed of teachers, industry partners, and peers. The project integrates skills, concepts, and data from the major subjects in their course of study. It is sometimes augmented by the products of many different projects previously required in the curriculum which together can create a portfolio for the student. For teachers and schools, projects offer a mechanism for encouraging integration and involving business and community representatives in an academically rewarding experience (Rahn et al., 1995).

The Integrated Design and Electronics Academy (IDEA) at Phelps Career Senior High School in Washington, D.C., provides instruction in core academic and vocational subjects and Junior Reserve Officers Training (JROTC). IDEA focuses on five career areas: engineering, drafting, communication, digital electronics, and residential and industrial electronics. A team of Phelps faculty is using a form of integration in which disciplinary boundaries disappear and teachers and students focus on a theme or enterprise. They are involved in an ongoing project to build an electric car that will compete successfully in the Richmond Raceway Electric Vehicle Contest. The project erases discipline boundaries as academic teachers from English, social studies, and mathematics, and technical teachers from electronics, automotive media, and computer-aided drafting work together to prepare their students for the competition. Their business partner, Potomac Electric and Power Company (PEPCO) paid the entry fee.

Students learn math, science, social studies, and the technical fields within the context of the enterprise. The results are a comprehensive form of integrated curriculum. The English teacher had students write about the competition. They practiced public speaking and made a video to describe the process they used to develop their vehicle. In social studies students researched the history of electric cars, in computer-aided drafting they prepared a schematic of the car, in automotive, engineering, and electronics they learned to troubleshoot and repair mechanical and electronic systems, and in mathematics they developed ratios to determine how far the car could go on an electrical charge.

Some did not think that an inner-city school could compete in building an electric car. Even teachers were skeptical, and the students did not know what to expect. The first year the Phelps students did poorly. The next year they

improved greatly. They were first in video production and third in trouble shooting, and students had practiced the values of discipline and perseverance. The Secretary of the Department of Energy visited Phelps to congratulate the students on their achievement. Competing introduced the students to the effort it takes to succeed in the work world, raised their self-esteem, and gave them practice in the SCANS competencies of being resourceful, understanding complex relationships, and working as a member of a team.

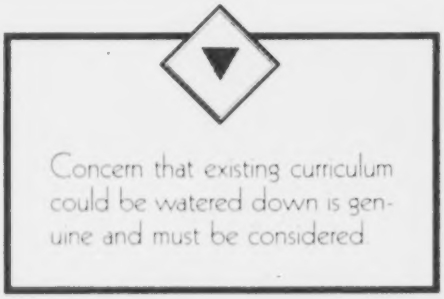
LESSONS LEARNED

When Network members were asked, "what problems do you encounter when integrating academic and vocational education," the most frequent replies were: insufficient administrative and faculty support, team instability, time for joint curriculum planning, staff development, appropriate curriculum materials and technology, and industry participation. Some schools encountered only a few problems, others several. These same difficulties have been observed to a greater or lesser extent in other school districts, including well-regarded suburban districts, as they began to integrate their curriculum. Problems will occur wherever significant change is initiated, until methods are developed to eliminate or diminish them. Not surprisingly, the simpler form of integration, the applied approach, was easiest to do because it is less complex, does not necessarily involve the entire school and can be done individually by most teachers.

Strong school leadership is required if integration is to become systemic. Some sites felt that their school and district administrators did not give them adequate support in their curriculum integration efforts. Several schools experienced radical changes in administration during the five years of their association with the Network. Nothing could be done about the problem of early retirement offers, with their consequent turnover of experienced teachers and administrators, but abrupt changes of principals created instability among the staff. Network sites that fared best had administrators who demonstrated their commitment by nurturing collaboration and providing leadership roles for teachers. They allowed teachers to set goals and make cross-discipline decisions about curriculum and scheduling. To sustain collaboration, these administrators were willing to explore new ideas, methods, and materials. They were also flexible and had the skills and determination to encourage school and classroom innovations.

Conflict is inevitable between teachers who are trying to develop an integrated curriculum, and those who fear the results may compromise the integrity of their discipline. Concern that existing curriculum could be watered down is genuine and must be considered, just as differences in readiness for integration among the staff must be respected. Every site has teachers who see the potential of inter-

disciplinary teaching, but the entire faculty must be open enough to accept the formation of teams who are willing to teach collaboratively. They must provide options for staff members who are more or less prepared than others—some teachers may have had team experiences while others are just beginning. Schoolwide communication across interest groups helps to promote openness to integration. At one Network site the faculty was divided about integration. Team members decided that the best way to unite the faculty was to have them learn something together. The faculty chose to learn how to access and use the Internet. Since the procedures were new to all, the experience built a base for discussion that nurtured tolerance for collaborative teaching and learning. One teacher called it the equivalent of breaking bread together.



Concern that existing curriculum could be watered down is genuine and must be considered.

Policies that hinder curricular and organizational changes, such as inflexible schedules and practices regarding textbook coverage, are being eased by district administrations and boards of trustees. School districts are modifying strict regulations to meet the requirements of integration. Performance standards are being written to include applied learning. District personnel are providing guidance and assistance concerning graduation and college entrance requirements. The Tech Prep emphasis on counseling has been particularly helpful. Boards of Trustees are decentralizing critical decision making by giving schools access to and control over resources. Several sites have direct access to their share of vocational and school-to-work funds and other grants. This allows them to stop others from undermining integration efforts by diverting needed resources.

Team instability is a demoralizing problem. A critical mass of experienced, highly respected teachers who are open to change must be developed and maintained. Their credibility can be used to influence those who see integration as threatening or who are reluctant to participate because of apathy or an unwillingness to relinquish their privacy. Every attempt should be made to keep integration teams stable from year to year. Urban Schools Network members agree that the loss of teachers after the first or second year is one of their biggest problems. Frequent reassignments are frustrating and make it very difficult to complete the work already begun. Just as teams are beginning to bond, they have to assimilate new members. Network sites feel that school administrators could ease the strain of staff turnover by providing systematic assistance to new teachers and working to strengthen the school's culture and resources.

Finding the time needed for joint planning is a another pressing problem facing those who are committed to integration. Teachers willing to develop a

plan of integrated studies must be given the time required to develop rigorous interdisciplinary assignments and assessment. They need time to develop collaborative work styles and to choose the content of the new curriculum and methods of teaching it. Many Network schools have adopted schedules that have the potential to increase planning time and bring about the changes that make the implementation of integration easier (for Network examples, see Chapter Four). The most commonly used schedule is the four-period day. The eighty- or ninety-minute periods allow students time to work on interdisciplinary projects. Faculties are finding an additional benefit in that the longer periods create a quieter and more orderly school, as well as saving some time in a school day, since there is less need for students to move from class to class. Another obvious way to gain time and assist in collaboration is to assign rooms in such a way that team members can work close to one another. However, the administration must recognize that providing time for teachers to plan and develop integrated curriculum is a waste of resources unless they also provide long-term staff development. When administrators do not provide time and policies to support staff development, teachers interpret it as an indication that integration is not important.

The need for a solid base of integrated curriculum and assessment tools is universal. Without sustained investment in curriculum and assessment development by the larger education community and textbook publishers, each school is forced to reinvent integration. Fortunately, help is on the way. National and state standards-setting efforts are encouraging integration by including examples of workplace problem solving. The National Council of Teachers of Mathematics and the American Vocational Association have formed a Joint Task Force on Mathematics and Vocational Technical Education that has called for the identification and development of an appropriate integrated mathematics curriculum for all students. The National Science Foundation is funding projects in both integrated mathematics and science. Well-known publishers are developing textbooks in the core subjects that include technical applications. These texts are also available in advanced courses such as trigonometry and calculus. In addition, there are several ongoing high-quality integrated math and science curriculum development initiatives. Unfortunately many teachers have not yet heard about them and do not have the funds to purchase them.

Urban district curriculum administrators need to be diligent about making these materials available for review by teachers. Teachers in schools that have access to the new materials are saving time and resources by supplementing them where appropriate instead of starting from the beginning. Teachers are also reducing the expense of developing new learning activities by sharing resources and equipment. This is an area where statewide or regional consortia, federal grants, and partnerships with universities and colleges could help. The

Baltimore school district supports curriculum integration through an initiative in which core academic teachers work with career and technology education teachers to infuse career and technology concepts into English, mathematics, science, and social studies.

Very little systematic documentation and evaluation of the integrated curriculum developed by Network schools is presently available. Schools lack funds and the expertise to conduct rigorous curriculum evaluations. This can result in a lack of coherence and poorly designed units. Even if the materials were documented and made available, teachers still need time to collaborate and learn from one another. They need time to develop assessment practices and data analysis procedures that focus on and support integration. They also need to collect information that will help them understand how students, staff, parents, and business people feel about integration. So far district and site inducements to accomplish this have not been significant.

Sustained industry involvement supports integrated teaching and learning in critical ways. Network sites uniformly agreed that integration becomes more meaningful and students more engaged when concepts, skills, and assessments in technical and academic areas are developed jointly with industry partners. Students from impoverished neighborhoods experience growth in their capacity to understand intrinsic rewards and learn about the rewards of purposeful activity in adult life and of contributing to their communities. They learn that work is something that people can enjoy. Integration requires a major transformation in the relationship between schools and industry. Yet it is difficult for schools and industry to develop meaningful partnerships. In vocational schools, where industry advisory committees are the rule, employers are more likely to help teachers find technical applications for academic skills by developing objectives, learning activities and written training plans. Although partnerships are emerging, building and maintaining good working relationships can be difficult for comprehensive high schools, where industry participation has not been a standard practice.

It is not only a challenge to obtain and provide sufficient information about various industries, it is also difficult to maintain contact with industry representatives. Usually academic teachers and counselors have little industry experience. Relating their lessons to specific career areas is not possible until they learn enough about the industry to understand the connections with their discipline. Nevertheless, teachers must have, and be seen to have, knowledge of the industry and of the subject matter that is important to that industry. An increasing number of Network schools are providing opportunities for teachers and counselors to visit sites where their students are working, to see how employees use academic skills in everyday tasks and to visit other classrooms and schools to observe outstanding work related applications. Those who visit

workplaces or have an internship, invariably find that the experience is an excellent way to learn about industry and how to share that knowledge with their students. They learn how curriculum embedded in workplace contexts can address both industry and academic standards. School staff who have worked in industry are invaluable as they can make substantive links between their class work and industry experiences.

CONCLUSION

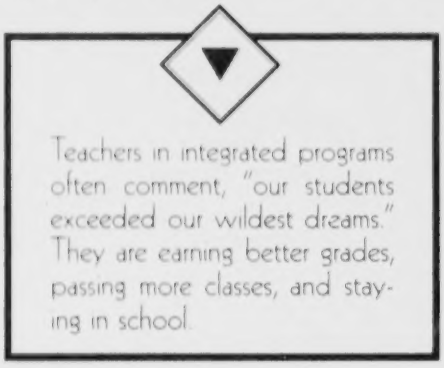
Teachers in integrated programs often comment, "our students exceeded our wildest dreams." They are earning better grades, passing more classes, and staying in school. Many of these students become leaders at their schools. At several Network schools, students in integrated programs disproportionately graduate as valedictorians, salutatorians, and members of the honor society. According to anecdotal reports from their teachers, they achieve in writing, mathematics, science, and problem solving at higher levels than most of their peers. They have had experience in working in groups and making oral and written presentations. When academic lessons are connected to questions that are important to the students, there are fewer discipline problems and students are motivated to study. Classrooms begin to take on the atmosphere of offices and shops. Students are purposefully engaged and show that they are capable of diligence and responsibility. Teachers say, "these students come to us at risk of not graduating from high school, but leave eager for postsecondary opportunities."

Network teachers also enjoy their increased collaboration. They take pride in the ability of their colleagues with varied backgrounds and interests to work together. As integration becomes more interdisciplinary, teachers begin to show interest in subjects outside their own disciplines. In the past there might have been a lack of understanding between academic and vocational teachers. As a result of integration they began to share ideas and equipment. This sharing helped improve communications and showed how they could help one another. Many of these relationships turned into learning opportunities and enduring friendships. Most say about integrated curriculum, "It is just more interesting."

As the work at the Network sites progresses, it becomes increasingly clear that integration of academic and vocational curriculum is most successful when it is part of a comprehensive schoolwide improvement effort rather than another add-on to existing practices. The use of broad industry themes to integrate academic and vocational learning is emerging as a way to restructure schools for both academic and occupational advancement. This restructuring promotes the intellectual development and growth of students and supports present reform efforts, including an emphasis on teaching and learning; higher academic,

technical, and employability standards; and partnering with industry to focus and strengthen standards. Integration reinforces these reforms and helps teachers provide better ways to prepare students for the complexity of adult life.

When carried out as part of a whole school effort entailing major changes to curriculum, staff interactions, counseling, and scheduling, integration can permanently change the way the school does business. However, most urban schools have taken only small steps. They have found it relatively easy to establish integration for some students, but difficult to involve the entire school. Nevertheless, increasing numbers of schools are starting schoolwide efforts. At present these endeavors are as tenuous as might be expected when a school attempts to change practices that have existed for decades.


Teachers in integrated programs often comment, "our students exceeded our wildest dreams." They are earning better grades, passing more classes, and staying in school.

School evaluations of the effects of curriculum integration show that although integration is being used successfully in schools that serve all types of students, it can have particular meaning for urban students when it provides a way to make academic and technical content richer, more coherent, and more engaging. Connecting urban students' classroom instruction to the world of work deepens their knowledge and sense of purpose. With improved teaching of rigorous academic and technical content, urban students can and do pursue both higher education and employment in high-performance workplaces. Benefits accrue to all, for they are graduating with an understanding of the work world and its requirements for lifelong learning, a background for career decision making, and preparation for lives of skilled work.

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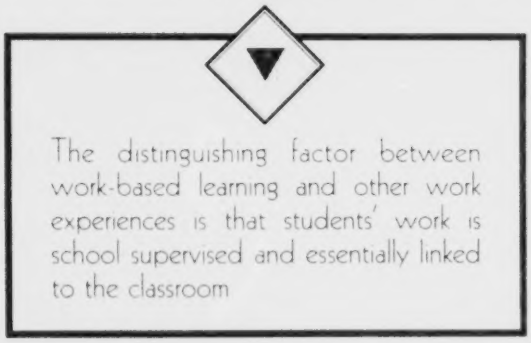
CHAPTER
3

Work-based learning (WBL) is a hot topic. A recent review of the literature attributes the growing interest in WBL to an "emerging learning-based economy" (Urquiola, Stern, Horn, Dornsife, Chi, Williams, Merritt, Hughes, and Bailey, 1997, p. 120) where workplaces are seen "as part of the education system of the future" (Hamilton and Hamilton, 1997a). The workplace has a lot to offer students: a context for academic learning (Steinberg, 1997a), direct preparation for adult responsibilities (Urquiola, et al., 1997), one-on-one relationships with adults, and in some cases an income. The concept of using the workplace as an alternative learning environment is not new; it has been around since the advent of vocational education in the Smith Hughes Act of 1917. In the past, WBL in schools came in the form of cooperative education and work experience and in most cases was limited to students who took vocational education classes (Stasz and Kaganoff, 1997). These programs stressed the importance of job skill acquisition and exploration of the world of work. With the passage of the 1994 School-to-Work Opportunities Act (STWOA), work-based learning programs have grown to include all students, whether or not they take vocational classes. The difference between former WBL programs and current efforts is the idea that work experience, if linked carefully to the classroom, can

enhance student academic knowledge and skill. This new emphasis on classroom learning has drawn in many teachers who may not have considered adding work-place experiences to their curriculum. Feature articles on work-based learning in *Educational Leadership*, the *Harvard Education Letter*, and *Phi Delta Kappan* reveal a broader interest in what was once considered "voc-ed" only.



The distinguishing factor between work-based learning and other work experiences is that students' work is school supervised and essentially linked to the classroom

Teachers and administrators from the National Center for Research in Vocational Education's (NCRVE) Urban Schools Network have five years' experience with developing and implementing work-based learning programs. NCRVE formed the Network in 1992 to provide technical assistance to urban school districts implementing the Carl D. Perkins Vocational and Applied Technology Act of 1990 (for an overview of NCRVE's Urban Schools Network, see Chapter One). While the primary focus for Network sites was the creation of integrated curriculum and the implementation of Tech Prep, many sites included a WBL component. Based on Network experiences and current research, this chapter will outline definitions, purposes, and types of work-based learning and will share ways to link and ensure quality WBL with classroom learning.

DEFINITIONS AND PURPOSES FOR WORK-BASED LEARNING

A definition for work-based learning is hard to pin down. Theoretically it has been defined as a planned program of work experience linked to school (Stasz and Kaganoff, 1997) that contributes to the intellectual and career development of students (U.S. Congress, 1995, p. 13). Practically it has been defined as an "employment-related activity" in which students are "actively engaged" in producing goods and services in a location where the "primary activity" is producing goods and services (Hamilton and Hamilton, 1997a, pp. 6, 7). The term *work-based learning*, originates from Section 103 of the 1994 School-to-Work Opportunities Act, where it is defined as follows:

> Mandatory Activities. The work-based learning component of a School-to-Work Opportunities program shall include:
>
> 1. work experience;
> 2. a planned program of job training and work experiences

(including training related to pre-employment and employment skills to be mastered at progressively higher levels) that are coordinated with learning in the school-based component described in section 102 and are relevant to the career majors of students and lead to the award of skill certificates;

3. workplace mentoring;
4. instruction in general workplace competencies, including instruction and activities related to developing positive work attitudes, and employability and participative skills; and
5. broad instruction, to the extent practicable, in all aspects of the industry.

Permissible Activities. Such component may include such activities as paid work experience, job shadowing, school-sponsored enterprises, or on-the-job training.

Urban Schools Network sites define WBL in a variety of ways as well. Many sites had or were developing WBL programs prior to the passage of the STWOA. At Lake-Clifton Eastern High School in Baltimore, Maryland, one administrator defines work-based learning as "opportunities for students to learn to earn, opportunities for students to work to learn... an opportunity for students to change their attitudes and perceptions about the world of work." At Putnam West High School in Oklahoma City, Oklahoma, according to one teacher, "it is anything that we do that gets students out in the business sites."

In most definitions of WBL, the distinguishing factor between WBL and other work experience is that students' work is school supervised and essentially linked to classroom learning. Just as there are many definitions of work-based learning, there are also many purposes for doing work-based learning.

In an analysis of school-to-work (STW) initiatives in the United States, Urquiola and his colleagues (1997) found five "distinct possible purposes" for WBL and classified them as follows (p.123):

- acquisition of knowledge or skill related to employment in particular occupations or industries,
- career exploration and planning,
- learning "all aspects of an industry,"
- increasing personal and social competence related to work in general, and
- enhancing students' motivation and academic achievement.

Urban Schools Network sites report similar purposes for their work-based learning initiatives. Network sites often choose types of WBL activities that match their sites' definition and purpose for doing WBL. For example, during the July 1997 focus group interviews, at least two Network sites said that they choose to implement WBL activities that increase the personal and social competence of their students. Teachers at Phelps Career High School in Washington, D.C., send their student barbers and cosmetologists to local senior citizen homes and to others who cannot afford haircuts. These students use their skills throughout the city and learn to work with people. As their principal says, "it makes everyone feel better and connects the community." At Putnam West High School in Oklahoma City, teachers encourage their health career students to volunteer at their local hospital's free clinic.

TYPES OF WORK-BASED LEARNING

To fit the individual needs and stated purposes of each school community, work-based learning activities often take different forms. Hamilton and Hamilton (1997a, p. 6) have categorized these forms of WBL into ten main types:

- VISITS TO WORKPLACES

  FIELD TRIPS—one time visits to observe.

  JOB SHADOWING—longer-term, sometimes multiple visits to observe by following a worker.

- WORKLIKE EXPERIENCE

  SERVICE LEARNING AND UNPAID INTERNSHIPS—voluntary service, not necessarily with a career focus.

  YOUTH-RUN ENTERPRISES—workplaces created to give youth employment and management experience.

- EMPLOYMENT

  YOUTH JOBS—jobs ordinarily open to teenagers but often not learning opportunities.

  SUBSIDIZED EMPLOYMENT TRAINING—paid work as part of a training program.

  COOPERATIVE EDUCATION AND PAID INTERNSHIPS—school-related work experience.

YOUTH APPRENTICESHIPS—long-term (over several years) work and learning programs leading to certification.

Network sites have implemented a variety of these WBL types (see Table 3-1 for a quick checklist of the types found at Network sites).

The types of WBL found in the Urban Schools Network fall along a continuum, ranging in intensity from exposure-to-the-workplace activities like field trips (least intensive) to full integration of academic and vocational curriculum with work-site experience activities like apprenticeships (most intensive). Many sites, including Baltimore, Detroit, Harrisburg, Las Cruces, Oklahoma City, and Washington, D.C., offer this continuum of WBL experiences based on grade ranging from least intensive in grade nine to most intensive in grade twelve.

For example, at the Harrisburg site, ninth graders go on field trips to explore career fields, tenth graders job shadow, eleventh graders start cooperative education placements, and twelfth graders engage in paid cooperative education and internships. In Las Cruces, WBL activities extend beyond grade twelve to what administrators call "grade thirteen" based on an articulation agreement with Doña Ana Community College. At the end of a student's third year in the program, which starts at grade ten, students receive a high school degree, an associate degree in Occupational Business, and 2,500 hours of structured paid work experience.

Of the ten types of WBL, Hamilton and Hamilton (1997a) declare youth apprenticeships the "epitome" of work-based learning. According to Hamilton and Hamilton, the 1994 School-to-Work Opportunities Act was "inspired in part 'by the time honored apprenticeship concept'" (p. 1). Another widely endorsed and well-researched type of WBL is school-based enterprises (SBE), or youth run enterprises, as Hamilton and Hamilton call them. SBEs are student-designed and run businesses on a school site where students produce goods and services for their community. It has been found that SBEs often give students more room to make mistakes and provide more opportunities for learning than nonschool enterprises (Stern 1984; Stern, Stone, Hopkins, McMillion, & Crain, 1994). This finding makes school-based enterprises an attractive option for WBL, especially in communities that lack job placements for students. Network sites operate their own school-based enterprises. In Detroit, Michigan students run and operate a certified automotive service garage. Students in Brooklyn, New York operate a repair center for computers, photocopiers, and scanners; meanwhile, students in Cleveland, Ohio are planning to open a photocopy center.

In comparing types of WBL, the question whether paid or unpaid experiences are better has often come up. Stasz and Kaganoff (1997) interpret the legislation as preferring paid experience over unpaid experiences. However, an administrator from a Network site offers a broader definition:

TABLE 3-1:
TYPES OF WBL AT URBAN SCHOOLS NETWORK SITES*

	FIELDTRIPS	JOB SHADOWING	SERVICE LEARNING	INTERNSHIPS (UNPAID)	SBE**	YOUTH JOBS
AKRON	▲	▲		▲	▲	
BALT-CITY TECH	▲	▲	▲			▲
BALT-LAKE CLIF	▲	▲	▲	▲		▲
BALT-LANSDWN	▲	▲	▲	▲		▲
CHARLOTTE	▲	▲		▲		
CLEVELAND	▲	▲		▲		
DETROIT		▲		▲	▲	▲
HARRISBURG	▲	▲				
LAS CRUCES		▲			▲	▲
MILWAUKEE	▲	▲	▲	▲		▲
NASHVILLE		▲				
NEW ORLEANS		▲				
NEW YORK	▲	▲	▲	▲	▲	▲
OKLAHOMA	▲	▲	▲			
OMAHA	▲			▲		▲
ST. PAUL	▲	▲			▲	
WASHDCPENN			▲			▲
WASHDCPHELPS	▲		▲	▲		▲

* Primarily these types of WBL are found in Network high schools, although at some sites this information includes postsecondary findings as well.

** I use the term SBE (*school-based enterprise*), which is the equivalent of Hamilton's *youth run enterprises*.

*** I would add to Hamilton and Hamilton's types "workplace mentorship" programs where students develop one-on-one relationships with employees in a business.

TABLE 3-1:
TYPES OF WBL AT URBAN SCHOOLS NETWORK SITES*

	SUBSIZED TRAINING	COOP	INTERNSHIPS (PAID)	APPRENTICE-SHIPS	WORKPLACE MENTOR-SHIPS***
AKRON		▲	▲		
BALT-CITY TECH			▲	▲	▲
BALT-LAKE CLIF		▲	▲		▲
BALT-LANSDWN		▲	▲	▲	▲
CHARLOTTE		▲		▲	
CLEVELAND		▲	▲		▲
DETROIT		▲	▲	▲	
HARRISBURG		▲	▲		▲
LAS CRUCES	--	▲	▲		
MILWAUKEE		▲			▲
NASHVILLE				▲	
NEW ORLEANS		▲	▲		
NEW YORK	▲	▲	▲	▲	▲
OKLAHOMA			▲	▲	▲
OMAHA		▲	▲		
ST. PAUL		▲	▲		▲
WASHDCPENN		▲	▲		
WASHDCPHELPS					▲

> There are lots of different ways that students can get a learning experience besides collecting a paycheck. Work-based learning is not only a paid work experience, but a nonpaid work experience as well. It's job shadowing where students can follow a professional in the work force. It's mentoring. Students ought to have the options to select different opportunities, understanding that it doesn't always have a paycheck.

Other key factors have influenced choice of WBL types for Network members. Some sites have faced the external pressures of changing relationships with business partners. For example, one of Nashville's school-to-work programs originally partnered with a large convention hotel. The hotel hired students the same way it hired regular workers. The only distinction was their title, student workers. The size of the hotel complex, the point system used for attendance, and the lack of maturity on the students' part were contributing factors in this business partner not working out. After evaluation of this workplace, Nashville site members decided to use smaller work sites such as hospitals, restaurants, retirement centers, and family-owned businesses.

Yet another challenge for Network sites is the volatile nature of the job market. How are educators to know what jobs to prepare students for? An administrator for Detroit Public Schools offers the following perspective:

> We are not sure what jobs will look like in the future. Because many of the jobs that we're expecting to come up have not even been created. So the best thing that we can do is to give students some skill acquisition that will help them transfer the knowledge that we've provided into the next millennium. We're concerned about problem solving, conflict resolution, teaming, and all those kinds of things that they must be able to do.

Instead of changing your program to fit the shifts in the job market, train your students to be ready for anything.

Student needs and desires often change as well; therefore some teachers are faced with the challenge of finding other industries or more rigorous work experiences for their students. A teacher at McKinley Penn Senior High School in Washington, D.C., discovered that after she placed a talented student at a popular magazine, the young woman decided she did not want to write for a career, although she enjoyed writing for herself. So the teacher found the student another placement. "It's just as valuable for students to figure out what they don't like as much what they do like," asserts one Network member.

In order for schools to meet the above challenges, WBL programs must be carefully planned and structured in a flexible way to offer increasing levels of mastery over time. Within a thoughtfully planned WBL structure, students discover strengths and weaknesses as they grow. Hamilton and Hamilton (1997a) offer a useful chart that covers all the dimensions of work-based learning—level of intensity, purpose, types of activities, connections to the school, and teacher/employer investment. To maximize the potential for student learning these items should be considered in planning a WBL program.

TABLE 3-2
Dimensions of Work-Based Learning
(Hamilton & Hamilton, 1997, p.7)

	Purposes	Activities	School Connections	Investment
Level 3	Technical Competence	Planning, performing, and evaluating complex tasks	Integrated	More
Level 2	Personal and social competence	Performing routine tasks	Interdependent	
Level 1	Exploration	Observation	Related	Less

The first part of this chapter provided definitions, purposes, and types of WBL found by researchers and practiced by Urban Schools Network sites. The next section, will show how Network sites link WBL with classroom learning as a result of the types of WBL that each has chosen to implement.

LINKING WORK-BASED LEARNING TO CLASSROOM LEARNING

The distinguishing factor between work-based learning and cooperative education and other "work-experience" programs is the classroom link to nonvocational subjects such as math, English, science, and social studies (Stern and Rahn, 1995). Research has shown that WBL can add value to school learning

when it is "explicitly connected to academic subjects and the practical application of those subjects" (Stasz and Kaganoff, 1997). Adria Steinberg's book, *Real Learning, Real Work* (1997b), offers three strategies for providing quality links to academic curriculum: project-based learning, work and learning projects, and field studies (see Box 3-1).

BOX 3-1

TRYING ON WORK WHILE TRYING OUT MINDS

(Steinberg, 1997b, reprinted with permisstion from *Horace*, the journal of the Coalition of Essential Schools (Providence, Rhode Island), Volume 14, Number 1, page 2 (September 1997).

"The challenge in school-to-work programs," says Adria Steinberg of Jobs for the Future in her new book, *Real Learning, Real Work*, "is to create something that does not look like school, as teenagers now know it, or like work, as most of them experience it." The best work-based learning strategies let students try on different work identities, she concludes, while they learn the concepts, skills, and habits of mind that prepare them for college and careers. Jobs for the Future has identified three complementary strategies, she notes:

Project-Based Learning. Class or individual projects, jointly negotiated by students and teacher, in which students investigate an area of interest to them and important to the course of study. Work or community partners help provide context and information for the project and attend a culminating exhibition in which students present and exhibit their findings and results.

Work and Learning Projects. As part of a work-based learning experience students complete a project, in which they investigate an important issue connected to their work and make a contribution to the work site. Work site mentors provide coaching and expert advice from the design stage through the assessment of the project.

Field Studies. These investigations of complex, real-world problems are usually initiated by work or community partners "hiring" students as consultants to study or make recommendations on a specific decision or problem. The partner acts as the "client" to whom students present findings, conclusions, and recommendations.

Over the years, Urban Schools Network members have developed practices for making the connection between the workplace and the classroom. Network teachers advocate using projects, linking to postsecondary education, and industry visits.

PROJECT-BASED LEARNING

Project-based learning is a tool for designing curriculum based on student interest for an authentic audience and purpose. In Washington, D.C., students in the Printing Academy at McKinley Penn High School were working on designing and producing a postage stamp for the U.S. Postal Service. Social studies, history, government, and English teachers from the Publishing Academy worked with their business partner to develop curriculum for the project. Students designed, executed, and assessed their own progress. Students at McKinley Penn were learning not only about the printing industry but also about how most industries operate.

Students at Putnam City West High School in Oklahoma City participate in a nine-week health industry shadowing project. Students are given writing assignments each time they return to school from biweekly visits to the local hospital. Students keep journals of their assignments for the nine weeks of shadowing, and at the end they write a research paper on the career area that most interests them. The hospital and health industry provide an authentic learning environment for students to hone their research and writing skills. Although there is no outside audience for this project, students learn the importance of identifying and in some cases refining their career goals.

Network teachers discovered the need to teach breadth—both in occupational areas (called "all aspects of the industry" in the STW legislation) and academic subjects. As an administrator from Baltimore notes "there's got to be an interdisciplinary approach" to work-based learning activities. This need for an interdisciplinary approach to WBL in the classroom lends itself to integrated curriculum projects (for more examples of integrated curriculum projects see Chapter Two).

Another technique that lends itself to linking workplace and classroom learning is "backward mapping" (for more information on backward mapping or project-based learning, see Box 3-2 at the end of this chapter). Backward mapping is a conceptual tool for designing curriculum. Using this tool, teachers start with an essential question that must be answered in a workplace context and using academic standards. Next they develop the project framework and criteria for assessment. Finally they plan classroom and workplace activities that support the project. Using this tool, teachers can create rigorous, challenging projects that include both work and school objectives for learning.

Teachers in the Network have found that using curriculum projects tied to students' workplace experiences can in some cases increase student achievement in academic subject areas where a student is able to practically apply academic knowledge. For example, a math teacher at Harrisburg High School in Pennsylvania, tells the story of a young man who kept "acing" the teacher's math quizzes. When asked why he was doing so well, the student said that he had been using his math in his drafting classes and at his work placement. A comment like this is music to the ears of any teacher struggling to help students see the relevance of their subject area. Furthermore, teachers at the Harrisburg and Baltimore sites encourage the students who "get it," that is, who make the ties between school and work to share their epiphanies in the classroom.

LINKING TO POSTSECONDARY EDUCATION

Another way to tie WBL to the classroom is to provide links between secondary and postsecondary education. The Network was founded on the expressed belief in providing high-quality career and educational options for all students which includes the option of going to college after high school. Over the years, Network members have tried to provide for their students an education that meets this standard. In Detroit, administrators at the district level strategically use their WBL programs as a "bridge" to community college programs "to give [students] that extra leg up that other students may not have." Moreover, they have seen in Detroit a "mirroring/merging" of the college prep track and the career prep track, so that students are offered the "best of both."

Some Tech Prep sites that joined the Network to create and implement formal articulation agreements between secondary and postsecondary institutions included a WBL component in those plans. For example, West Charlotte High School in North Carolina recently finalized an articulation agreement with Central Piedmont Community College so that students no longer have to wait several quarters before they can begin WBL at the college. Network members from New Orleans devised a plan that provides college credit at Delgado Community College to students from L.E. Rabouin High School who successfully complete their cooperative education program.

Other sites have found innovative ways to connect their students with postsecondary options. McKinley Penn in Washington, D.C., had a dual enrollment program between Washington Public Schools and local colleges and universities such as George Washington University, Howard University, American University, and Trinity College. High school seniors in the Communications Academy took courses related to the communications field on the college campuses. For example, one professor from Howard University, a former employee of Disney

Studios, taught students animation. In some cases students went twice a week to the colleges instead of going to the communication lab at McKinley Penn.

INDUSTRY VISITS

Another practice by Network sites that connects WBL to classroom learning is taking the classroom to the industry. Teachers from Putnam City West High School have designed a summer camp that brings ninth and tenth graders to local hospitals to view many different operations in the health industry. At the Harrisburg site, students have accompanied teachers on job shadows of the electronics industry. Some shadowing visits have lasted as long as two weeks. An added bonus for students, their teachers say, is that students learn about potential job opportunities at these companies right out of high school, and in some cases, the company has a program that helps pay college tuition.

Industry visits are beneficial both for students and for teachers, who learn about the industries to which they are sending their students. Teachers from the Harrisburg, Charlotte, and Detroit sites have completed teacher internships or externships (for more on teacher internships, see Chapter Six). The idea behind industry visits for teachers is that teachers later fold their knowledge of particular industries into the classroom curriculum making it more relevant for students.

Instead of going to industry, some teachers have found ways to bring industry into the classroom. One striking example was the radio lab at McKinley Penn in Washington, D.C., that National Public Radio (NPR) paid for, installed, and provided staff to teach students and teachers how to use. Another was a financial aid workshop put on by business partners for students at McKinley Penn. Many of these students were the first in their families to graduate from high school, let alone to think about attending college. In Omaha, the school-to-work coordinator at Bryan High School organizes "lunch bunches" for students, lunchtime talks on campus by industry representatives. A critical point here is that although the talks are open to all students, the coordinator invites specific students to attend based on their career interest. Students' career interests are kept in a database at the school that is accessible to both the coordinator and classroom teachers.

Network members have found that carefully linking workplace experiences with classroom learning can make learning "come alive" for students. An administrator from Detroit describes the awakening of one student:

> He was at his work placement looking at cells through a microscope and spotted an abnormal cell. He had seen something similar in his documentation of the disease and thought he had discovered the link to the cure for AIDS [Acquired Immune Deficiency Syndrome].

Network teachers have found that these awakenings, or educational sparks between school and work placements, are more likely brought about with the use of project-based learning, strategic links between secondary and postsecondary education, and comprehensive industry visits.

LESSONS LEARNED

ENSURING THE QUALITY OF WORK-BASED LEARNING

Linking school and work experiences is one thing, but ensuring quality experiences for students is quite another. Currently there is little information or research on the quality of WBL activities (Stasz and Kaganoff, 1997). However, it does seem that the benchmark of quality WBL is that students learn skills and knowledge that they can apply in the classroom. In an article entitled, *When is work a learning experience?*, Hamilton and Hamilton (1997b) provide a list of seven elements to look for in determining whether students are learning:

1. technical competence
2. breadth
3. personal and social competence
4. expectations and feedback
5. teaching roles
6. academic achievement
7. career paths

The idea behind this list is for teachers to make sure students' WBL programs contain all seven elements (if possible) to ensure quality WBL experiences. Teachers and administrators in the Urban Schools Network primarily stressed the importance of the "expectations and feedback" component. They found that training agreements, increased supervision, and frequent assessment of students helped ensure quality work-based learning for their students.

TRAINING AGREEMENTS

Network sites have found one way to ensure quality is to have teachers, students, parents, and employers design and put in writing an agreement that spells out the students' learning objectives for the work placement. In Oklahoma

City, students take the ACT Plan and Explore assessment tests in eighth and tenth grade. The Plan is an interest and academic assessment for sophomore students that assists them in identifying a career interest and gives a pre-ACT score. The Explore is the eight-grade version of the Plan. Both help determine student career interests while teachers hold individual counseling sessions with students and their parents to help determine the best work placements. An administrator from Charlotte stresses that the employer and the student must not only agree to the learning objectives for the placement but also include objectives that are measurable. In Omaha, students, parents, teachers, and employers must sign off on training agreements before students go to workplaces.

Other things Network sites have considered in developing WBL opportunities are safety and gender equity. In New York, career development coordinators at Westinghouse High School in Brooklyn call in the Board of Education Division of Work Experience to initiate business site monitoring for safety. The coordinators say, "We're not going to place kids in situations where they could put themselves in any jeopardy." Career development coordinators also make sure that training agreements are in place before sending students, especially female students, out to business sites. As one coordinator says, "I want to make sure that they get equal training with the male students." Ensuring gender equity is critical for female students in nontraditional workplaces. In Saint Paul, Minnesota, teachers at Humboldt Secondary Complex use a course called "Career Horizons" to encourage female students to explore nontraditional careers. The course consists of field trips, job shadowing, guest speakers, and technical college visits for young women interested in exploring and confronting the barriers to nontraditional careers. Humboldt's link with St. Paul Technical College has provided expanded opportunities for female student placements in the electrical and plumbing industries.

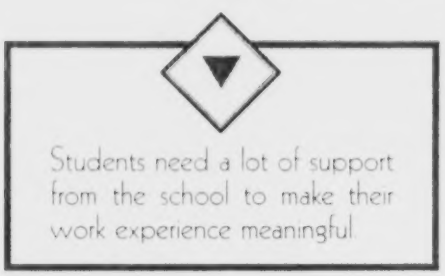
SUPERVISION

Staff at Network sites have discovered that students need a lot of support from the school to make their work experience meaningful. One administrator from Lansdowne High School in Baltimore emphasizes that, "any kid in a work-based program has to be in everyday contact with the teacher, coordinator, or a school-based person." One strategy Bryan High School uses to support students is making routine visits to the worksites to check up on students and solicit feedback from the students and employers alike. Another area of supervision is follow-up to ensure that students show up to the worksite consistently and on time until they develop habits for doing so.

Although checking up on students takes a lot of time, Network teachers feel it is the responsibility of the school to do so in order to maintain partnerships

with business. Businesses have little patience with students who have discipline problems or fail to report to work. Teachers from Omaha and Washington, D.C., make clear to employers that if they have any problems with a student to call the school and the school will take care of it. One Network teacher tells employers, "you don't have to put up with it [discipline problems], and that if you want to release the child now, we'll expect him back here, because we don't want problems and we want you to remain a partner with us." This teacher emphasizes that "we never ask for a second chance" from employers when a student doesn't work out. Network members have found that keeping good relationships with employers and taking responsibility for student behavior at the worksite paves the way for the next round of students going on work placements.

Another way Network sites have found to support their students' work-based learning is to offer training for students' worksite supervisors in the principles of mentoring. In Charlotte, North Carolina, the public school system, Central Piedmont Community College, and the University of North Carolina at Charlotte provided a mentoring workshop for direct supervisors of their students in work-based learning programs. In New Orleans, similar training called "meister training" is in place for workplace supervisors.



ASSESSMENT

Once a WBL placement is designed for a student and the student is well adjusted, Network teachers frequently assess the student to ensure a high-quality experience. As one Detroit administrator puts its, "we don't want students to become stagnant. We want them to grow and develop. So they can work as fast as they wish, or they can work as slow as they please, but before they finish they must complete all of the essential skills." The skills students must learn in Detroit are based on both industry and academic standards. Students are given a portable chart that lists academic and technical skills that they are to accomplish. At the end of each semester, teachers and work-site supervisors test student performance in each of the assigned areas and log the scores on the chart.

At the Communications Academy at McKinley Penn in Washington, D.C., students were assessed based on an evaluation tool that covered media industry standards, academic knowledge, attendance, and attitude and performance on the job site. In Omaha, students at Bryan High School are evaluated both by their teachers and employers based on similar standards. One teacher at Bryan

has developed a simple, comprehensive two-page form for employers to use to assess job skill performance. At Bryan, each student's career assessments are kept on file with the student's advisory counselor. This way advisors have the most accurate, up-to-date information to guide students in developing their skills.

In summary, it is important to make sure that students are learning from their worksite experiences by measuring whether students are applying their academic knowledge of such subjects as math, science, English, and history to their learning experiences at work. Different students learn different things based on the type of WBL they do. Educators must focus on the quality of the work-based learning experience; otherwise there is little evidence that students learn more from school-sponsored WBL than from their after-school jobs at local fast food restaurants (Stasz and Kaganoff, 1997).

CONCLUSION: WBL IS WORTH THE TROUBLE

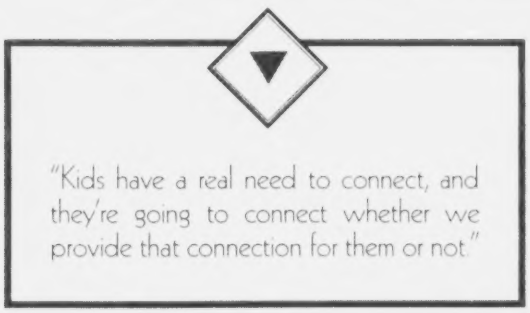
Work-based learning looks different at different sites due to a variety of definitions and purposes for creating WBL programs. As a result, it is difficult to measure what students learn in WBL programs. In fact, current arguments for WBL are "more logical than empirical as there is little consensus on how to define program quality apart from the various purposes that WBL hopes to promote" (Stasz and Kaganoff, 1997, p.6). If there is little empirical evidence that WBL is worth the time and energy to do it, why have educators like those in the Urban Schools Network persisted? A principal from Lansdowne High School in Baltimore County, Maryland explains it this way:

> When you go to school-to-work programs you're going to eat up a lot of staff, time, and money to provide this program. The end result is, you get a child who does not do well in school, maybe is going to drop out, and you get him into an employment situation and you learn how to motivate a kid [to stay in school]. They really sharpen their skills, and they go on to college.

Many Network teachers have seen changes in students' personal and social confidence. For example, one Network member commented, "we saw a depth of difference in their attitudes on their job compared to how they behaved in school." This teacher goes on to talk about a "marginal" kid that teachers hesitated to send out to the workplace. It turned out that the student "performed like a young adult" and the employers "loved him." Another student who was considered "special ed." was the lead designer of an electric car produced by students at Breighaupt Career and Technical Center in Detroit. The students

designed the car in 35–40 days in conjunction with a fabrication company and a major U.S. automaker. A teacher/administrator at Breighaupt points out, "we have such a high rate of success with our students who are supposed to be 'at risk' like the young man with that particular vehicle."

"Everything changes. And when students come back after being out, their chests stick out," as one Network member points out. Students in Las Cruces seem to take their education more seriously. One student said, "I know I give up a lot of extra curricular activities at school, but it's worth it to me...for my future." Students in the Academy of Finance, the Academy of Law Related Education, and the School of Business and Commerce at Lake Clifton Eastern High School in Baltimore, Maryland are dressing better, coming to school wearing ties and jackets or blouses and skirts. As one administrator puts it, "they are dressing for success in the workplace and bringing it into the school."



Network members also discovered an increase in attendance and scholarship among students who wanted the "privilege," as some Network teachers called it, of doing work-based learning. At Lake Clifton Eastern High School in Baltimore, students who have been in WBL programs do better on tests. The Las Cruces site can show better attendance in school by students in WBL programs. An administrator from the Detroit public schools notes increasing numbers of career and technical students getting 3.0 grade point averages and attending scholarship awards banquets. A teacher in the Health Career Cluster at Putnam City West High School in Oklahoma City compared grades of students who were in the Health Cluster and doing WBL with those students who were not. This teacher found that student grades remained fairly constant, but students in the cluster chose more of the advanced math and science courses. It was also found that the dropout rate decreased among these students.

There is some anecdotal, but nevertheless encouraging, evidence that WBL affects students positively and is worth the time and energy expended. As shown above, Network sites and research suggest that WBL can in fact advance learning in academic subjects if explicitly linked to those subjects and can engage students who were otherwise uninterested in school (Stasz and Kaganoff, 1997). An administrator from Las Cruces offers one reason why work-based learning may be affecting students in these ways:

> Kids have a real need to connect, and they're going to connect whether we provide the connection for them or not. Some kids

> connect to cheer leading, or to academics, but for many kids we don't have a connection for them. Work-based learning programs take them out of the big mega school and put them in one-on-one relationships with adults who care. I think that connects them. We've seen in our WBL programs that our kids are doing better in school. They're happier.

Urban Schools Network staff and site members have learned a great deal about work-based learning over the past years. One key finding was that WBL activities were being initiated by academic as well as vocational teachers at most Network sites. In fact, many sites made great efforts to tie their programs to postsecondary education. As a result of these WBL experiences, some students were encouraged to pursue postsecondary education after learning about the educational requirements of certain jobs. The icing on the cake for some students, like the ones in Harrisburg, was the discovery that if they were hired by their WBL employers, the company might even pay their college tuition. We also learned from teachers in the Network that ensuring high-quality WBL experiences takes time, energy, and resources often lacking in urban schools with tight budgets and high staff turnover. Therefore, in a July 1997 focus group interview, we asked Network members to share tips that they have learned for other practitioners starting WBL. In closing we provide their advice, along with a contact list for more resources on work-based learning (see resource list at end of chapter).

Things to consider in designing WBL programs:

- Try not to separate academic from career and technical outcomes.
- Train students better at school before sending them on the work site.
- Offer a variety of experiences for students.
- Build in flexibility.
- Start earlier, perhaps in middle school.
- If possible, hire a WBL coordinator to handle work placements.

Advice for finding work placements for students:

- Try your local chamber of commerce, private industry council, or business advisory board.

- ▲ Try small, local family-owned businesses.
- ▲ Don't ask potential business partners for money, instead ask for resources; such as employee time and transportation for students.
- ▲ Invite business partners or industry representatives to the school.

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USEFUL RESOURCES ON WORK-BASED LEARNING

(Reprinted with permission from *Horace*, the journal of the Coalition of Essential Schools (Providence, Rhode Island), Volume 14, Number 1, page 8 (September 1997).

American Youth Policy Forum has publications for educators interested in youth development and school-to-work issues. 1001 Connecticut Ave. NW, Suite 719, Washington, DC 20036; (202) 775-9731.

Changing the Subject: The New Urban High School is a demonstration project of the Big Picture company and the U.S. Department of Education. 118 Magazine St., Cambridge, MA 02139; (617) 492-3133; web: www.bpic.org.

Jobs for the Future works nationally with schools, districts, and communities to design, create, and assess school-to-career learning. 1 Bowdoin Sq., Boston, MA 02114; (617) 742-5995.

Manpower Demonstration Research Corporations designs and tests education and employment-related programs for disadvantaged youth. 3 Park Ave., New York, NY 10016; (212) 532-3200.

National Academy Foundation in New York networks over 170 career academy programs nationwide. 235 Park Ave. S., 7th floor, New York, NY 10003; (212) 420-8400.

National Center for Research in Vocational Education, 2030 Addison St., Suite 500, Berkeley, CA 94704; (800) 762-4093; web: http://vocserve.berkeley.edu.

New Ways Workers acts as a national broker for school districts, community organizations, businesses, and other groups to provide work-based educational experiences for students. 785 Market St., #950, San Francisco, CA 94103; (415) 995-9860.

Project-Based Learning Network connects educators interested in project-based learning, school-to-career initiatives, and education reform. Autodesk Foundation, 111 McInnis Parkway, San Rafael, CA 94903; (415) 507-5664.

Northwest Regional Educational Laboratory has fine materials from its Education and Work program, Integrated Workplace Learning Project, and more. 101 S.W. Main, Suite 500, Portland, OR 97204; (503) 275-9500 or (800) 547-6339; e-mail: info@nwrel.org; web: www.nwrel.org/.

Wise Individualized Senior Experience (WISE) Services helps schools organize project-based learning as transition to life beyond high school. Contact Vic Leviatin, 29 Old Tarrytown Rd., White Plains, NY 10603; (914) 428-1968.

Working to Learn, a project of TERC Communication, develops curriculum materials and runs workshops to strengthen the quality of work-based learning. 2067 Massachusetts Ave., Cambridge, MA 02140; (617) 547-0430.

CHAPTER
4

MIMI HARRIS STEADMAN

ALTERNATIVE SCHEDULING

How can high schools make time in the day for students to participate in the integrated academic and vocational curriculum and work-based learning experiences described in the previous two chapters? School-to-work initiatives require changes in instructional practice and out-of-classroom experiences that do not always fit neatly within the confines of a traditional seven- or eight-period school day. Even in the most traditional academic programs, the school schedule can limit opportunities for in-depth study, interdisciplinary work, and projects that require the application of new knowledge. In the 1990s, a demand for rigorous instruction and more productive use of learning time has prompted many American high schools to adopt alternative schedules, in particular schedules with longer class periods, or blocks, and fewer classes per day. By some estimates (Canady and Rettig, 1996), over half of American high schools are already operating on or planning a move to "block scheduling," schedules with fewer but longer class periods each day.

Schools in the National Center on Research in Vocational Education's (NCRVE's) Urban Schools Network have approached block scheduling with different goals in mind. One goal is to reduce the fragmentation of a school day in which students prepare for and attend up to eight disconnected classes daily.

In a schedule comprised of longer class blocks—more like a typical college schedule—students focus on only a few courses per semester, and complete what was formerly a year-long course in one semester. In a seven- or eight-period day, classes may be only forty to fifty minutes long. In each class meeting, several minutes are used for taking attendance, collecting homework, and other housekeeping matters. This leaves only some thirty minutes for instruction and learning activities, with little chance for student questions, collaborative work, or applied projects before the bell rings and students rush off to the next class. A block schedule, one with fewer classes per day and longer class blocks, reduces the number of transitions per school day, and the amount of time spent simply moving from class to class.

School-to-work initiatives require changes in instructional practice and out-of-classroom experiences that do not always fit neatly within the confines of a traditional seven- or eight-period school day.

Other schools have moved toward block scheduling with the aim of accelerating student progress and reducing dropouts by providing more frequent opportunities for students to make up failed classes. The block schedule offers an accelerated pace for students, who may complete an additional course each year. The accelerated schedule allows career-focused students to enroll in concurrent community college classes during their senior year or to devote an entire semester to a work placement.

For less successful students, failing a class under a traditional schedule could result in falling an entire year behind. One Urban Schools Network principal remarked that, under a traditional schedule, "if a student was failing a course at Thanksgiving, it was probably over for the year." With a block schedule, a student who fails a required course in the fall may be able to retake it in the spring rather than waiting for summer school or the next year. At Mergenthaler Vocational-Technical High School in Baltimore, Maryland, the required academic and vocational curriculum left no room for electives, so students who failed courses had to repeat them in the summer. As one teacher explained: "We have a feeling that a certain percentage of our dropouts are because when students fail a course, they have to take it in the summer, so they give up." Faculty at Mergenthaler voted ninety-eight to two for a block schedule, with hopes of lowering the dropout rate.

A third goal associated with the move to block scheduling is fostering a more academic atmosphere and quieting down the school building by reducing commotion in the hallways. According to Robert Lynn Canady and Michael D. Rettig, leading authors on block scheduling, the majority of high school discipline referrals are made during the passing time between classes, when students have only five minutes to go to the bathroom, go to their lockers, and, they add, "get

a date" (1996, p. 3). A block schedule with a four-period day requires only three or four passing periods. Bryan High School in Omaha, Nebraska, implemented a new ten-minute passing period to accompany longer course periods, noting that a longer passing time is a form of conflict management. The result, a staff member says, is that socializing takes place outside of class, and "kids have enough time to walk from one end of the building to the other, with less pressure from being pushed and shoved." A teacher from the same Omaha school describes her preference for the new ninety minute period: "Before, in the forty-five minute period, you felt like the bell was constantly ringing. You felt like you just got started on something, and there it is ringing again, and you have to start all over. Now, you feel like the kids are more relaxed and ready to go. The kids got used to it right away." Another teacher adds: "The whole building has a more academic atmosphere, because the kids are ready to learn."

Another key goal associated with block scheduling is making time in the day to implement innovative instructional methods and out-of-classroom experiences that are part of successful school-to-work initiatives. Interestingly, teachers of academic science courses have long wished for extended course periods to accommodate laboratory exercises, yet many traditional vocational subjects have been taught in longer course periods for years. A ninety-minute block provides enough time for personalized attention from the teacher, guest speakers from industry, integrated instruction, or extensive lab work and projects. In the upper grades, longer blocks may also make it easier for students to participate in field trips, job shadowing, and work-based learning placements. Offering two related academic and vocational classes, such as geometry and drafting or biology and health careers, in back-to-back blocks, creates opportunities for integrated curriculum units, student group work, and hands-on projects. Moreover, having a large proportion of teachers with a common ninety-minute planning period facilitates team teaching and other collaborative work among faculty. In some Tech Prep efforts, the block schedule also makes it possible for students to enroll in concurrent programs at the community college.

"Before, in the forty-five minute period, you felt like the bell was constantly ringing. You felt like you just got started on something, and there it is ringing again."

Certainly changing the school schedule is neither a panacea nor a requirement for school–to–work, or for other school change efforts. As with any change, the benefits associated with alternative schedules are accompanied by a new set of challenges and tradeoffs. Several schools in NCRVE's Urban Schools Network have recently moved from a seven-period day to a three- or four-period day in conjunction with their school-to-work efforts. This chapter examines the transition to

block scheduling at Urban Schools Network sites, and summarizes teachers' and administrators' reflections from 1997 focus group interviews on the promising outcomes and continuing challenges of this change at their schools.

SELECTED SCHEDULES AT URBAN SCHOOLS NETWORK SITES

4 X 4 BLOCK

A variety of schedules are in operation among the schools in the Urban Schools Network[1], including, of course, the seven- or eight-period day, also known as the single-period daily schedule (Canady and Rettig, 1995), which has been the most common high school schedule used for most of the century. An alternative schedule that has been implemented in several Network sites is the four-period day, also known as the four by four (4 x 4) block schedule, or the 4/4 semester plan. In a 4 x 4 block schedule, students typically take 4 ninety-minute classes a day, which they complete in one semester, for a total of up to eight classes per school year. Teachers generally teach three classes, with one long planning period daily. Some sites have modified the 4 x 4 schedule, for example, by offering a few classes, such as foreign language, advanced placement, or music courses, for half a block for the entire school year. Several Network sites are researching or actively planning for a 4 x 4 block schedule. The 4 x 4 plan is already in operation at:

- Bryan High School in Omaha, Nebraska,
- Lake Clifton-Eastern High School in Baltimore City, Maryland,
- Lansdowne High School in Baltimore County, Maryland,
- Maplewood High School in Nashville, Tennessee,
- Mayfield High School in Las Cruces, New Mexico, and
- the CREATE Consortium in Oklahoma City, Oklahoma, including Putnam City Schools and Millwood and Western Heights Public School Districts.

[1] The art of school scheduling involves the continual tweaking and refining of a chosen schedule to best suit the requirements of a particular setting. Given this customization process, a number of scheduling alternatives fall under the broader heading of block scheduling. For a comprehensive introduction to block scheduling, consult *Block Scheduling: A Catalyst for Change in High Schools*, by Canady and Rettig (1995), who explain several schedules, including the alternate day schedule, the 4/4 semester plan, trimester plans, and even single-course plans, and provide rationale, detailed diagrams, and possible modifications for each scheduling option.

THE 4 X 4 BLOCK SCHEDULE UP CLOSE AT BRYAN HIGH SCHOOL

Since fall 1994, Bryan Senior High School in Omaha, Nebraska, has operated on a four-period day schedule. Students take three or four ninety-minute classes per semester, no more than eight classes per year. Each semester, now called a term, is made up of two nine-week grading periods. Former semester-long classes are completed in nine weeks, and former year-long classes are now completed in one term (semester). Study halls at Bryan have been eliminated altogether, although students do have the opportunity for "guided study" within a block. Passing time has been extended to ten minutes, to allow students sufficient time between classes to visit their lockers and the restroom, and to talk to teachers and peers.

Teachers teach three classes per term, instead of the six they taught before the block schedule, and have a ninety-minute planning period daily. Teachers are generally responsible for seventy to ninety students, compared to their previous load of 140 to 180 students. In addition, students have a thirteen-minute advisement meeting with a faculty advisor at the beginning of each school day, creating a relationship with a teacher and a small group of other students that continues for all four years at Bryan. The daily schedule at Bryan is outlined in Table 4-1.

A sample ninth grader's schedule might look like Table 4-2.

TABLE 4-1

DAILY SCHEDULE AT BRYAN

Advisement	13 minutes
Block 1	88 minutes
Pass	10 minutes
Block 2	88 minutes
Pass	6 minutes
Block 3*	88 minutes
Pass	10 minutes
Block 4	88 minutes

*lunch period added here

DUAL SCHEDULE

Other sites have adapted the block schedule in varying configurations. Phelps Career High School in Washington, D.C., operates on a dual schedule— a block schedule for teachers and students in a career academy within the school, and a traditional eight-period day for the rest of the school. This schedule is possible because some academy teachers are assigned to teach academy courses only. Nevertheless, the whole staff is seriously considering a move to schoolwide block scheduling, and according to an administrator from the site, academic teachers who have observed the longer academy classes, are "coming around" with support for the block schedule.

TABLE 4-2

SAMPLE SCHEDULE AT BRYAN HIGH

Fall Term	Spring Term
Biology	Algebra 1–2
Lifetime Sports	Spanish 1–2
English 1–2	World Geography
Information Management Technology	

Jane Addams Business Careers Center in Cleveland, Ohio, tested a block schedule for ninth graders during the 1996–97 school year. Vocational teachers, already experienced with teaching long classes, adapted comfortably to the new schedule. However, staff members report that overall, the schedule experiment was not successful as a result of insufficient staff development for those teachers who were not prepared for the creative instructional modifications required by the longer period.

MODIFIED BLOCK

In New Orleans, Louisiana, L.E. Rabouin Career Magnet High School operates on a modified schedule, with a regular seven-period day Monday, Tuesday, and Friday, and long blocks on Wednesday and Thursday. An administrator indicated that before the school makes a move to a 4 x 4 block schedule, they must first focus on integrating curriculum, building a stronger relationship with the community college, and providing professional development to prepare some teachers for instruction in a long block.

A schedule that combines block and traditional scheduling provides a way for teachers and students to test the waters and gradually adapt to a longer course block. Some Network sites, however, advised against a split schedule, or a gradual transition to block scheduling, suggesting that keeping track of multiple schedules caused more chaos and confusion than starting fresh one semester with a brand new, but consistent, block schedule.

TRIMESTER PLAN

Another scheduling option, less commonly found in high schools, is the trimester schedule which is currently operating at North Division High School in Milwaukee, Wisconsin. North Division staff describe their trimester plan as a 3 x 3 block schedule. In the past, teachers had five course responsibilities daily and students attended seven courses. With the 3 x 3 schedule, students attend 3 two-hour classes, and teachers teach 2 two-hour classes and take advantage of a two-hour prep period each day. At North Division, no accom-

modations were made to run certain courses, such as language or music, for the entire year, but the school works in other ways to support teachers who are concerned about the impact of the trimester on their subject areas. For example, marching band is strategically offered in the fall semester, and all teachers can take advantage of a daily built-in activity period to work with students year round. One feature of the trimester plan that appeals to schools who are concerned about dropout and failure rates is that the trimester allows students who fail a course up to two additional chances to retake it during the school year.

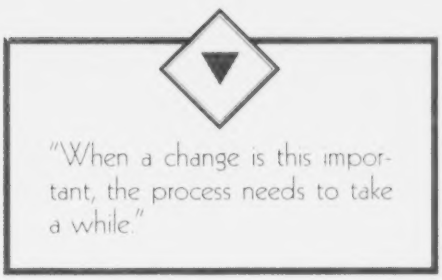
ALTERNATE DAY SCHEDULE

Another schedule variation involving fewer but longer periods each day is the alternate day schedule, also called the A/B block schedule, or Day 1/Day 2 block schedule (Canady and Rettig, 1995). In this schedule, courses are offered in longer instructional blocks, with half the courses offered on A days, and the rest offered on B days over the entire school year. In some schools, students have three long blocks each day, plus one shorter period that runs on both A and B days, for a total of seven courses per year. With the alternate day block schedule, as with the 4 x 4 plan, teachers and students benefit from extended learning time during each period and fewer course changes daily. Offering courses all year long on alternate days, rather than every day for one semester, may appeal to faculty from subject areas that require strict sequential instruction of concepts or ongoing reinforcement and practice of skills.

A drawback of the alternate day schedule is that, as in a traditional schedule, students often manage six to eight courses all year long. In addition, teachers may still be responsible for up to 180 students at a time, rather than the smaller student load they would have in a 4 x 4 block schedule. These key tradeoffs may have led more Urban Schools Network sites to choose the 4 x 4 block schedule. The 4 x 4 block allows both teachers and students to concentrate on fewer courses at a time, and teachers can form closer working relationships with a smaller number of students whom they see for longer periods of time. This chapter, based on the experiences of Urban Schools Network sites, focuses most closely on the 4 x 4 plan. The block scheduling literature provides a wealth of information on the unique features of numerous other schedule models to meet the needs of diverse school settings.

THE SCHEDULE CHANGE PROCESS AT BRYAN AND OTHER SITES

For many Network sites, the move to an alternative schedule was preceded by a lengthy decision-making and planning process. The transition to block scheduling at Bryan Senior High School, in Omaha, Nebraska, is one example of a collaborative and comprehensive schedule change process. The staff at Bryan first began exploring nontraditional schedules and their potential for integrating academic and vocational education in 1991, as part of an overall school restructuring effort. Before making any decisions, Bryan staff did extensive research and planning. A key feature of the planning process was the opportunity for several "late start days" when teachers could participate in committee meetings until 11:00 a.m. without students present. One teacher asserted: "When a change is this important, the process needs to take a while. And the change came from the teachers, not from someone else telling us that is what we were going to do." A staff member explained the process: "We looked at a number of different schedules. By bringing in people from other schools, through paper research, and from a video teleconference we did with another school, we gradually began to see that what we wanted was this 4 x 4 block." According to nearly every staff member interviewed, the planning and implementation process at Bryan was very successful. As one teacher remarked, "It's been very successful at Bryan, and I think one of the reasons is it was teacher planned and teacher implemented. Those of us on the bottom of the hierarchy worked long and hard designing and implementing." Another key to the success of the planning process was the availability of time and money: "You can't have this level of change without the money and the time—money for computers, speakers, people coming in."



The teacher-driven nature of the schedule planning process at Bryan was evident at other Urban Schools Network sites as well. At Lansdowne High School in Baltimore County, an administrator explained that at her site:

> Block scheduling was initially mentioned administratively, but it was the teachers who determined who was going to be a part of the committee that would organize the investigation into it. It was the teachers who visited other sites, it was the teachers who invited people in to answer questions and the teachers who involved their union to see if their rights would be involved.

> When they finally voted, about eighty percent of faculty were in agreement with the change, and they were fully aware of instructional changes that would be needed.

Additionally, both Bryan and Lansdowne had administrative support. Lansdowne's principal said:

> We wanted teachers to be sure they recognized they were gaining, not losing, with this change. So we removed all duties. No one had cafeteria duty, we hired community people to work in the cafeteria. So teachers ended up with a ninety-minute planning period and a duty-free lunch period, which allowed them additional time for planning individually or in team combinations.

Teachers from Maplewood High School in Nashville, which went to a four-period day three years ago, were also central players in the change process:

> When deciding to go to block, we sent teachers out to different schools to see and evaluate different scheduling options. The most vocal and resistant teachers were sent out to look at other sites. Teachers visited several sites outside of Tennessee, to look at schools similar to ours in terms of demographics, so that teachers could see how the 4 x 4 would look in their subject. We studied for a whole year before we even took a vote.

A staff member from Bryan High School in Omaha summarized their planning process: "We as a group of ninety faculty looked and talked and fought and argued for about a year and a half, and then ultimately decided the faculty would take a vote." The vote was seventy-eight percent in favor of a move to the block. Teachers who voted against the change were offered a transfer within the district, but virtually all staff chose to stay at Bryan.

Once the faculty had decided on the block schedule, they next took the plan to students, parents, and the school board, in what they described as "a fairly democratic and inclusive process," in which "people had their questions answered along the way." Bryan staff emphasized broad participation in the change process. "Getting parents involved is critical. It's their school and community, their ideas need to be included at the beginning, not as an afterthought. You need to communicate formally, and informally, at PTA, sports events, and so on." Staff recounted how parents evolved from suspicion to support for the change:

> The teachers who introduced block scheduling at the first round of parent meetings were targets for verbal attacks. But by the second parent meeting, when new parents were challenging whether

block scheduling would work, the parents from the first meeting were responding to the questions for the teachers.

Students were also kept informed by teachers or administrators who went to all current students' classes, as well as to the middle school, to answer students' questions before the schedule was put in place. By the time the issue reached the school board, the Omaha Public Schools Board of Education voted unanimously to support the change.

Attention to the change process after implementation is crucial as well. Bryan attempted to support teachers in the implementation phase by holding "block parties" the first year. The block party, which took place during a planning period, was an opportunity for the principal to sit down with the quarter of the staff who were on their planning period at that time. A staff member explained: "He would take a half hour of that ninety-minute planning period, and just sit and listen and let staff vent. Hopefully there's something that the principal could do, some small things, to address their concerns." The block party was also an important opportunity for staff to debrief and talk to each other: "The isolation the first year can be there, because your notion of how to plan is different. The teachers did the two weeks of lesson plans, but for some it wasn't enough. The tempo and pacing are a lot different." Network teachers emphasized an ongoing need for followup and feedback to school administration beyond the first year of implementation.

Another essential element of the change process at Bryan was a built–in evaluation plan, which took into account grade point averages, failure, dropout and graduation rates, attendance, credits, test scores, survey results, and more. Evaluation results reported in the "Bryan High School Block Schedule Update" from the Omaha Public Schools Department of Instruction and Special Education (7/22/96) included the following outcomes of the block schedule at Bryan:

- More students are on the honor roll.
- Fewer students fail classes.
- Teachers teach more creatively and in depth.
- There are fewer discipline referrals.
- Teachers and students know each other better, leading to an improved classroom atmosphere.
- Students earn significantly more credits than in the past.
- Attendance rates have been maintained.
- Grade point averages have increased.

- Teaching styles and strategies have changed.
- Students complete more elective and upper-level classes.

According to Bryan faculty, the implementation of block scheduling was not without its ups and downs. Despite some frustrating challenges that came along with the new schedule, faculty, when asked if they would prefer to return to a traditional schedule, responded with a resounding "no, never." As one teacher put it, "I think back to doing things in forty-five minutes, now I sometimes wish I had two hours." A discussion of the positive and challenging outcomes of the new schedule follows in a later section, but first we consider the changes in instruction required to accompany a change in the schedule.

MODIFYING INSTRUCTION TO MATCH THE SCHEDULE

As mentioned, one goal of block scheduling is making time for innovative instructional methods, such as integrated instruction, application activities, extensive lab work, and hands-on projects. Not only is making time for innovative instruction a leading rationale behind schools' decision to move to block scheduling, but also the change to block scheduling will not succeed without a change in instruction. When asked during a teleconference how a teacher can deal with a group of adolescents for ninety minutes, Robert Lynn Canady (1995) responded, "The same way first grade teachers can deal with a classroom of six year olds for a whole day — with a variety of instructional materials and activities." Urban Schools Network teachers assert that "you need to switch activities at least three times in a class, you can't lecture for ninety minutes," and that "you cover material in a different way because you're forced to."

Along with other Network members, a tech prep coordinator for the New York site noted that a concern about students' attention spans was a sticky point in decision making about the block schedule. *A Harvard Education Letter* article addresses this concern from the perspective of Joseph M. Carroll, author of the *Copernican Plan: Restructuring the American High School*:

> While some might argue that the fast pace of an eight- or nine-period day with a change every forty-five minutes is necessary for teenagers with short attention spans, Carroll counters that the traditional schedule actually makes students less focused. Longer periods, on the other hand, have a 'dejuvenilizing' effect on young people, he says. They give students more time to take on

> adult responsibilities in classes (rather than being passive receivers of information) and provide more opportunities for meaningful interaction with teachers (Sadowski, 1996, p. 4).

Of course, changing instructional style and classroom activities is no simple feat. Sadowski described how block scheduling affected instruction in one school: "Some teachers were using the lengthened class time to try a variety of hands-on teaching techniques like cooperative learning, peer editing, and group projects; others were still lecturing in the same way they had before, only for twice as long" (1996, p. 1). In Urban Schools Network sites, a similar trend has been noted. Teachers from a variety of disciplines described adaptations and new activities they used in their courses (see Table 4-3: Instructional Adaptations Across Subject Areas). A teacher at Bryan High School said that the new schedule "released the creative juices...I tried a lot of things that first time around. They didn't all work, I may not use them again, but at least it gave me a chance to try. I was in a rut." An administrator at Lansdowne High School described the new schedule as a "more exciting way to teach" that was "rejuvenating to the staff, who were able to give more real-life experiences to students."

However, administrators at some other Network sites have been less than enthusiastic about adaptations to instruction. One said, "I've observed teachers, and I could fall asleep as I'm observing them." Another administrator reported that the teachers who complain most about the new schedule are those who want to lecture for the whole period. One teacher advises, "I will fall over asleep trying to evaluate you, if you're talking for ninety minutes, you sure can't do that for kids. If you're teaching Romeo and Juliet, maybe for thirty minutes, you can let them act out the scenes. They'll remember it more." She added that the school is made up of two groups of teachers: "those who are creative, and those who do the same old thing—stand up and talk, and the kids aren't going for it. When you look at the discipline referrals on your desk, you know who is creative, and who just tries to talk for ninety minutes."

Network sites have used professional development to help teachers prepare for the transition to a ninety-minute period, and to promote ongoing instructional improvement. As one network administrator said, you "need to make sure a comfort level exists among teachers about the types of instruction required for block scheduling." To meet the demands of the ninety-minute period, the principal from L.E. Rabouin High School in New Orleans suggests instructional methods such as "jigsaw helping trios, getting kids to problem

solve, more production work...[and] taking kids through the process of learning." These can be challenging for content-centered secondary teachers to do, so one approach she suggests is brainstorming instructional strategies by department, to help teachers "think of their content in terms of process."

At Lake Clifton-Eastern High School in Baltimore, Maryland, the staff requested half days every Wednesday for staff development in preparation for the block schedule: "We had curriculum specialists work with teams of people to teach them additional strategies such as cooperative learning and multiple intelligences. Interdisciplinary teams developed integrated curriculum, and put it into action."

Lansdowne High School, in Baltimore County, Maryland, offered a paid curriculum workshop several times over the summer, allowing teachers to choose when to attend. The product of the week-long workshop, with nearly one-hundred percent staff participation, was at least two weeks of plans for the start of the school year so teachers would not have to go in cold to a ninety-minute block. Professional development continued throughout the school year. Lansdowne's principal asserts that the school's job is to "deliver quality instruction. For one year every committee, staff development, and so on, was disbanded so that people could focus on instruction. Instead of inundating staff with theory, we gave them time to work together and plan." Staff were grouped into interdisciplinary teams charged with developing an integrated lesson and presenting it to faculty. Moreover, the evaluation of teaching was based on a four-period day model of instruction, and those staff who "couldn't cut it" were transferred to another school.

At Bryan High School, along with written materials, a teleconference on block scheduling, and late start days for planning, teachers from other block-scheduled high schools were brought in to consult with Bryan staff. Bryan teachers met individually or in small groups with the teachers experienced in teaching in a long block, and were able to brainstorm ideas about classroom activities and curriculum changes and ask questions about anything they had on their minds. Bryan staff rated the use of the teacher-consultants as the most valuable preparation for the block schedule.

The following results of a faculty and student survey administered during the first semester of block scheduling at Bryan High School strongly suggests that preparation efforts paid off in terms of a noticeable change in instruction in Bryan classrooms. The survey results are very positive overall, yet it is interesting to note the different perceptions among students and teachers to the two following survey items:

▲ QUESTION 1: "Are teachers using different teaching methods?

STUDENT RESPONSES:
strongly agree 15.2% agree 54.5% disagree 22.9% strongly disagree 7.3%

TEACHER RESPONSES:
strongly agree 39.4% agree 54.9% disagree 4.2% strongly disagree 1.5%

▲ QUESTION 2: "Do teachers use various activities during class?"

STUDENT RESPONSES:
strongly agree 8.1% agree 49.2% disagree 24.1% stronglydisagree 8.6%

TEACHER RESPONSES:
strongly agree 59.2% agree 36.6% disagree 4.2% strongly disagree 0%

Table 4-3 summarizes the types of instructional adaptations teachers made across different subject areas in terms of preparation, pacing, and activities offered to meet the needs of a longer period.

TABLE 4-3:
INSTRUCTIONAL ADAPTATIONS ACROSS SUBJECT AREAS

SUBJECT AREA	INSTRUCTIONAL ADAPTATIONS
MATH	▲ "I use computers a lot more. I can teach something, then apply it immediately, by having the students go to the lab for twenty minutes. The staff started calling the Mac lab the 'Math Lab,' because the math teachers always sign up for it."
	▲ "We do lots of hands-on activities that we didn't used to have time for. In a unit on volume and surface areas of three-dimensional shapes, students create figures out of paper stock, or prisms from straws, and they pass them around and figure out the volume, rather than just us giving them formulas that they plug in...they actually get their hands on things. Before, in forty-five minutes, by the time you get the materials out and explain what you want them to do, it's time to put them away."

Continued

▲ "I also teach pre-calc trig. They have more time to work in groups and problem solve. Instead of just looking at the formulas, going over examples, and then sending them home to do them, we now do some group projects. For example, a grocer has three different sizes of cereal boxes of the same brand, and they're all different heights, but he doesn't like wasting space. They have to figure out and calculate how to make them the same height but with different volumes."

▲ "Text books are often designed in sections with a forty-five-minute period in mind. With the new schedule I move along and cover two topics in a ninety-minute session, a strategy called 'two-a-days.' Students are warned at the beginning of class that they will have a 'two-a-day,' which means I will teach a lesson that introduces something new, give a homework assignment with 20 to 30 minutes in class to apply the new concept, and then start fresh within the same block on a new topic."

FOREIGN LANGUAGE

▲ "I can't teach irregular verbs, then say, 'O.K. now let's talk about the passive voice' [during the same block]. They're two completely different concepts. With the additional time, however, I can do a lot more with oral proficiency. They can work in class to do skits and presentations. But with grammar, I'm moving through the chapters a little slower, because I'm not comfortable teaching two different concepts in one day."

SOCIAL STUDIES

▲ "We go to the library, work on the Internet, work on computers. You can vary things two to four times in the block with different types of activities to get to the same kind of goal."

SCIENCE

▲ "Science lends itself to this because of all the labs. We can set something up, talk about it, work on

Continued

it, do conclusions, work on graphs, interpret it, in that ninety-minute period."

- "The science teachers have developed activities for our physical science, biology, chemistry, physics classes. Whenever I go in to observe one of my science teachers, they're always involved in some activity. It cuts down on the discipline. I don't get a lot of referrals from the science teachers, because the kids have no time to go in there and act up. From the time they enter the room, there's something in there for them to do."

MATH, SCIENCE, ENGLISH & ART

- [An interdisciplinary murder mystery project with a forensic lab focus] "Some kids from the art class who went in and did some chemistry came back saying 'I wish I had taken chemistry, I didn't know it was like this. I didn't know medical biology would be that much fun.' It allowed kids to do some exploring, it was interdisciplinary. And it allowed teachers to do some sharing. Before we were in our own little shells."

HOSPITALITY & MATH

- "We did a project around travel within the state of Tennessee. Students had to figure out how much money they would need for things like lodging, food, and gas."
- "We combined math and cooking, with all the measuring. Kids have fun when they see teachers working together."

BUSINESS/ COMPUTERS

- "You can cover the whole scope of any topic you're working on, say computer piracy and ethics. You can introduce the concept. You can talk about it. You can role play. You can do the whole thing, and then you can evaluate, all in one period. Before our periods were forty-five minutes, five to seven

Continued

	minutes to settle kids down, then turn computers on, then thirty minutes to work and shut down."
ENGLISH	▲ "The block is a challenge for literature, which has a rhythm—books and short stories have a rhythm. When you've been teaching for years, you know, for example, that *Twelve Angry Men* is a two-week unit, and you know how much time in forty minutes you have to read, to do the quiz. But, you have more time, so you're able to do more exciting things. Like, 'Let's talk about trials in America right now. Let's do some small group work on how the judicial system works.' I bring in an article from the paper. That's wonderful because the play gets taught better than it did in the old days. But not as much literature gets taught, because you can't expect a young person to go home to read twelve chapters in one night."
	▲ "There's time to show a video…for a slow reader, the reinforcement helps."
CLOTHING CONSTRUCTION	▲ "It used to take us a month and a half to complete a project, now it takes us a few weeks. This makes a big difference. And money can be an issue for my students, if they have to go out and get materials, and then a week later they have to buy more materials."

Table 4-3 highlights some of the innovative teaching and learning activities Network teachers implemented under block scheduling. The table also signals some potential challenges of adapting to a longer course period. It takes a while to get the timing figured out, teachers warned, and at first they often found themselves prepared with too much, or not enough, to do in a given block. One teacher mentioned she wished she had been more prepared for the logistics of the long block:

> I didn't realize what it would be like to come prepared with two days worth of handouts. Keeping up with the paper load—a quiz, a small group topic, homework, etc. I spent more money at Kinko's than I ever have in my life because you have to have so much ready in a day, your turnaround time for materials is quicker, so you can't expect to get it copied at school.

Several teachers mentioned that the first semester under block scheduling, while exciting and energizing, feels a lot like being a new teacher.

LESSONS LEARNED: PROMISING OUTCOMES AND CONTINUING CHALLENGES

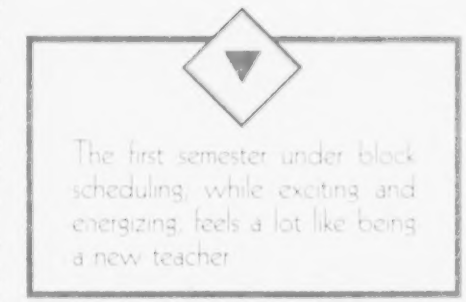
ENHANCING ACADEMIC ATMOSPHERE AND STUDENT SUCCESS

Goals associated with adopting the block schedule included promoting a more academic atmosphere, and increasing student success through an accelerated schedule and innovative instruction. Progress toward these goals is evident in several Network sites. Network members reported that with the block schedule, "students and teachers have taken on a more academic role." One teacher said, "I feel I can require more of students, because I know they have two electives and one other academic class, I have higher expectations because no one else is cutting into their time, there won't be seven tests on one day." Teachers appreciate the new pace of the school, for both in-class work and administrative responsibilities. Grading is more manageable they say, and they are maintaining closer contact with students and their parents in the process. As one teacher described, "there's a lot less stress on teachers, especially around grading time, when you need to contact 70 parents instead of 180. "

Students have also responded favorably. One Omaha teacher reported, "That first and second year I had some of the juniors and seniors saying, 'this is not fair, you should have done this earlier while we were here.' They felt cheated that we hadn't done this sooner." Some teachers believe that students are now more conscientious: "[Under the old schedule] if they wanted to hide out for forty-two minutes, get a pass, go to their lockers, talk to friends, they could have. But not with ninety minutes. They know they'll be missing something." An assistant principal reported that she "sees fewer kids for discipline referrals, especially the kind due to absences or skipped classes." Students are aware of the consequences of missing an entire ninety-minute period, said several teachers.

"Kids look ahead and say 'I don't wanna miss that, I'll have a lot to make up!' I'm seeing fewer absences from minor colds or whatever."

Another positive outcome of the block schedule is that the accelerated format is providing more options for students in terms of work placements, college courses, or chances to retake courses to make progress toward graduation. As one principal said, "If a kid fails a class, he can retake it the next semester...he's not dead-ended for the whole year." The accelerated schedule also offers flexibility. A math teacher at a school where many students work out of financial necessity explained that "a lot of them work at night and they have a tough time getting to school at 7:30. So we can omit first period for them ...and that prevents a lot of dropouts. They are really appreciative. They say 'You'll do that for me?'"



Maplewood High School staff in Nashville found that the 4 x 4 block schedule was advantageous to older students who were behind as a result of failed classes. "We have a lot of students who are 18 and older, and we graduated more young men in this class than we have ever graduated. They were able to accumulate courses and graduate. For us, graduating a senior class of a majority of males was an accomplishment...we usually have fewer males."

Block scheduling also promoted innovative instructional adaptations, as described in the previous section, and provided time for internship, work, and introductory college experiences that are part of successful school-to-work initiatives. One school reported that the block schedule was useful for "placing senior students in internships and work placements, because more students had met all requirements by first semester, and by second semester all they had was English 4." The internship coordinator at Bryan High School in Omaha reported that internship placements had tripled since the move to block scheduling, a positive outcome that clearly posed some logistical challenges.

In Nashville, the block schedule made it possible for an English teacher from a community college to teach at the high school, and for high school students to visit the college. This arrangement provided "kids a look at the college experience, especially those who had never considered going to college, and they got dual college and high school credit for the English course." Schools in the Baltimore area offered community college courses through distance learning, providing students options for early admission and faster progress toward an associate degree.

The accelerated pace of the block schedule has been a concern at some sites, in the case of students who have completed required courses and earned enough credits to graduate, but who are not yet prepared to leave high school.

Some strategies Urban Schools Network sites have used to encourage students to stay in school through senior year include offering required courses only during selected semesters, developing new and exciting elective courses, involving more students in internship or work placement options, and developing concurrent enrollment agreements with community colleges.

CONFRONTING CHALLENGES

Urban Schools Network sites confronted a number of challenges and surprises, including the issue of students acquiring enough credits to graduate early, during the implementation of their new schedule. A number of these challenges were anticipated as a result of thorough research during the schedule change decision-making process in which schools carefully considered what they might gain and what they might lose with various schedule options. To some staff, the disadvantages of the existing seven-period schedule were simply viewed as "givens," while the potential problems of a block schedule were considered serious disadvantages. Through the research and change process, however, a close examination of the given disadvantages of the existing schedule resulted in a decision to move to block scheduling.

At most sites, the challenges confronted during the implementation process were viewed as issues to work out rather than insurmountable problems requiring a return to a traditional schedule. The challenges mentioned by Urban Schools Network staff included concerns about coverage, testing, and absenteeism, and the complexity of the scheduling process itself.

CONTENT COVERAGE AND SEQUENTIAL COURSES

Some teachers raised concerns about the challenge of covering required course content within a single semester. Although students have the same amount of in-class time under a block schedule (e.g., ninety minutes for half a year rather than forty-five minutes for the whole year), there are only half as many days over which to assign reading, homework, or practice, in the case of music and language classes. One English teacher said that although she is now covering topics in more depth, she is not able to cover the same amount of literature she covered before. She feared that "the block is not as good for [advanced] kids. They need more than a semester with us. I'm ashamed I'm cheating them. I'm ending with F. Scott Fitzgerald...American Lit ends in the 1920s!" She added that one of her colleagues, frustrated with trying to prepare students in one semester for the Advanced Placement exam in English, concluded that "ninety minutes a day does not equal forty-five plus forty-five." This

was perceived as particularly true in schools where fall and spring semesters had different a number of school days due to holidays and vacations.

Another concern, expressed by those who teach classes like math and foreign language, which build on knowledge learned in the previous course, was the potential for a year-long gap between two courses in a sequence. For example, a student might take French 2 during the fall semester in tenth grade, but not take French 3 until the fall or even spring of eleventh grade. A language teacher from Omaha said she found it necessary to devote a few weeks at the beginning of the semester to review. Other teachers noted that they always found it necessary to review at the beginning of a class, even under the old schedule, with only a summer vacation between sequential classes.

To address these concerns, some schools under the block schedule continue to offer selected courses year round, in some cases combining two classes to share a block. Other schools build in an activity period where students can practice musical instruments, review concepts with an Advanced Placement teacher, or participate in any number of other school activities. While many teachers are still struggling with coverage, or "getting to the end of the book," under the new schedule, most expressed confidence that they are covering topics in depth, and that they are gradually adjusting their lesson plans to fit a longer period for half a year.

TESTING

Another challenge related to coverage and sequential courses is preparing students for standardized tests at the appropriate time. A principal from a school not yet operating on a block schedule expressed this concern:

> What if a student has a math class first semester freshman year, but not second semester, then still doesn't take math the next semester, and does not get math again until second semester sophomore year? But we have math testing sophomore year. We have to look at scheduling those courses so students can pass those state tests.

An administrator from Baltimore responded:

> State mandated tests were a concern for us too. If we know a majority of students will have to take the reading or social studies tests and so on, we have scheduled them into classes that relate to those tests as close as possible to the time for that testing. Of course you can't do it [schedule every student according to required test] one-hundred percent, so we had to implement some other things, such as Saturday coach classes.

The school also reorganized the schedule to prepare for a writing test. Only students involved in the testing attended school for a certain day, and every teacher in the building was involved with preparation for the test, resulting in high scores.

To prepare students for Advanced Placement (AP) exams, which are administered in May, some schools teach AP courses during the spring semester; others offer test review for fall AP classes; and still others hold AP courses year round. Due to the increasing numbers of schools operating on a block schedule, AP tests are likely to be offered in the winter semester, too. In preparation for all types of testing, Network representatives encouraged those involved with the master schedule to take testing into account, and for all staff to consider supplementary strategies for test preparation.

ABSENCES

In spite of reports that the block schedule has enhanced the academic atmosphere of many schools, student absences remain a concern at virtually all Network sites. Teachers and administrators asserted that "the major problem is absences. That's what prevents us from getting our jobs done," and concluded that "most failures are due to absences." Attendance problems are not a result of the block schedule, but absenteeism, which was a major problem in the past, is an even greater concern when curriculum units are covered in less time, meaning that a student who is gone for a few days may miss an entire unit.

Several teachers believed that the block schedule had encouraged some students to think twice before missing class, and some sites reported modest improvements in attendance. However, the block schedule seemed to make little difference for chronically absent students. A Nashville administrator summarized the situation, "We have a high dropout rate and high absenteeism at our school. Those students who came to school [before the block schedule] still do, those who didn't still don't. The 4 x 4 has no effect on them at all. Either they want to be there or they don't." Similar experiences were reported elsewhere. A teacher and school scheduler from Milwaukee's North Division High School reported that the school's citywide rankings for grade point averages of students with at least ninety percent attendance increased markedly under the trimester schedule. While "the 3 x 3 has had a dramatic effect on the good students—they are excelling tremendously...those students who didn't come to school before still don't come."

Network sites have tried various strategies to deal with absences. Some sites have offered Saturday or after-school opportunities for makeup work. In Nashville, Maplewood High School is working to communicate the importance of attendance to parents, and if "students miss seven days in a semester, they cannot get credit, even if they passed the course." Exceptions may be granted

in cases of illness or other emergencies. At another Network site, the policy is no more than five absences in nine weeks, but the policy is not strictly enforced, creating requests for makeup work and additional work for teachers.

An administrator from Baltimore's Lansdowne High School also stressed the importance of explaining to parents the impact of absences under a block schedule, that "being absent one day is like being absent two days in terms of information missed." Lansdowne attacked the attendance problem with grant money. "What we chose to do was to get an attendance officer, with a computer, phone line, and so forth, with the specific role to reduce absenteeism." One approach used was calling students' employers and making them aware that students needed to make up school work by staying after school. Employers were asked if they would adjust students' work schedules so they could fulfill their academic responsibilities. Most employers were very cooperative, and "when students saw the impact of absenteeism on their paycheck, it made quite an impression."

THE SCHEDULING PROCESS

A final challenge reported by Urban Schools Network sites is the complexity of the task of scheduling an entire school of staff and students. The block-scheduling literature (e.g., Canady and Rettig, 1995) and representatives of Urban Schools Network sites recommended a thoughtful and detailed schedule planning process. At some schools, an assistant principal is in charge of the scheduling process, while at others the scheduling process is led by a teacher or administrator assigned the job of "master scheduler." No matter who takes the role of master scheduler, at least one staff person needs to look at the schedule holistically, and other staff, such as department chairs, need to review the schedule for its impact on particular areas.

Designing a new schedule requires careful consideration of the potential ripple effect of schedule changes on all school operations, and vice versa, including:

- the district and other school calendars;
- middle schools and junior high schools;
- holidays and vacations;
- standardized and state testing;
- district data system and software for grading, attendance, and other records;
- lunchtime and cafeteria capacity;

- passing time and bathroom facilities;
- bus schedules;
- staffing needs;
- substitutes;
- course sequences;
- transfer students;
- audiovisual needs;
- photocopying needs;
- textbook usage and costs;
- supply budgets for materials-heavy courses; and
- enrollment in electives.

At most Network sites, schedulers face the added challenge of scheduling students into classes appropriate for their career academy or career pathway.

As an example of the ripple effect of the block schedule, Bryan High School in Omaha, among several other Network sites, experienced increased enrollment in many courses, including electives. Bryan teachers reported for some electives and foreign language classes "that previously enjoyed only fifteen students in the class, are now looking at thirty." The larger numbers of students scheduled into electives meant the supply budgets for classes such as Nutritional Science, were not sufficient when class size increased dramatically. After the initial implementation years, schools may be more accurate in predicting the impact of block scheduling on various areas of school operation.

In the process of considering all the possible areas of impact listed above, and taking into account individual student and teacher needs and preferences, it becomes clear that putting together a school schedule requires tradeoffs and compromises, and an awareness that a single schedule will not satisfy everyone completely. Although the schedule requires constant reworking, it is impossible to accommodate every individual need. As one assistant principal charged with scheduling put it, "when one department comes with a concern, it's just a sliver of the pie." Her advice is to let those who present a concern "have a go at rescheduling" to accommodate their requested change. When they attempt to change one class, it is likely to affect every other class in some way. When staff are given the chance to see firsthand all the repercussions

Not a single teacher we spoke with wanted to return to a traditional schedule

of a suggested change, they are likely to become more flexible and accept the inevitable compromises.

School scheduling is much like the plastic puzzles with numbered squares that require moving one piece at a time with the goal of getting all the pieces in the right place. When you move one piece closer to its appropriate position, it will often undo the work done to get another piece to its correct spot. In schedules, and in puzzles, with patience, creativity, and perseverance, all the pieces will eventually fit together.

CONCLUSION

Among Urban Schools Network sites, the scheduling process came to be viewed as an ongoing series of tradeoffs and compromises. The task of scheduling, which requires revising and refining from semester to semester, is never finished. Schools learned that a change in the school schedule is more than a logistical modification in minutes, hours, and semesters. New schedules present options for additional changes, changes that challenge existing assumptions about instruction and learning, and about curriculum content and coverage. It is not surprising that investigating and implementing alternative schedules went hand in hand with other reform efforts at Network sites.

When weighing the overall challenges and successes of block scheduling, not a single teacher we spoke with during focus group interviews wanted to return to a traditional schedule. Teachers and administrators viewed the implementation problems they experienced as hurdles to climb over, not as permanent barriers to success. Rather than calling for a return to the seven-period day, NCRVE's Urban Schools Network sites are focusing their work on adjusting and fine-tuning their schedules to best serve the needs of students, staff, and community.

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CHAPTER
5

WHOLE SCHOOL CHANGE

In 1992, a team from the Consortium to Restructure Education through Academic and Technological Excellence (CREATE) in Oklahoma City attended the National Center for Research in Vocational Education (NCRVE) Summer Institute, "Establishing Tech Prep Programs in Urban Schools." Its plan focused on the strengthening of a 4+2+2 program to encourage more high school students to continue their education beyond a high school diploma and prepare for careers in technical areas. Although the plan looked like a winner, the CREATE leaders felt their results after three years were not what they wanted in the most important area: a significant impact on student outcomes and achievement. Students were not taking more vocational or academic courses. The applied academics courses had not led to increased test scores. Students were not taking advantage of the articulation agreements to continue their education in the community college or university systems. More students did not have focused career and/or postsecondary education goals in the fields related to the Tech Prep course sequences. Says Robin Schott, codirector of the CREATE Tech Prep initiative:

> We were using tons of marketing gimmicks—pens, pencils, T-shirts, and more—to sell our Tech Prep initiative to kids. But marketing was not really making a difference in kids' experiences in school. We decided we needed a different vision that would focus on all students' career goals, not on a separate program for some kids.

The consortium also identified and supported small teams of willing vocational and academic teachers at a couple of high schools and concentrated professional development and support on them rather than making a mammoth, five-district centralized effort. For CREATE, the different vision incorporated the strengths of its Tech Prep initiative into a structure built on career clusters for all students in the comprehensive high school.

The results in the last two years have been dramatic. The majority of faculty at one high school has requested participation on cluster teams with the enthusiastic support and leadership of the principal. Three high schools are developing two cluster models each that will eventually be placed in all ten high schools in the five districts to give students their choice of six clusters. Parent and student responses as measured by various surveys tell CREATE that community understanding and support for career clusters is very high. Says Schott, "Enrollment in vocational courses is up one-hundred percent. Enrollment in advanced academic classes is up. Although we only require two science courses, more students are taking that third year because they really understand within their career cluster what they need to get where they need to be." Where they used to market with pens and pencils, now the emphasis is on helping students select a career cluster and developing the six-year course plan within that cluster. "Our marketing is truly that one-on-one communication between advisors and students with parents to talk about the students' career goals, develop that plan, and take the courses they need in high school to get there."

Like many consortia and schools around the country as well as most of the teams in NCRVE's Urban Schools Network, CREATE started with an emphasis on a Tech Prep initiative. Several Urban Schools Network teams, including CREATE, decided to expand their initial plans into whole school reform. Why did CREATE and the others choose to go schoolwide? What factors can lead to this decision, and what other factors help whole school change efforts grow or die? What can be learned from the experiences of the Urban Schools Network teams?

CHAPTER 5

THE PLANS

Most of the teams that were selected for NCRVE's Summer Institutes of 1992 and 1993 sought assistance creating or strengthening Tech Prep programs. Among these teams were the CREATE consortium from Oklahoma City, the Doña Ana Tech Prep Consortium in Las Cruces, New Mexico, which includes three Las Cruces comprehensive high schools and Doña Ana Branch Community College, and the Omaha team composed of Bryan High School and Metropolitan Community College in Omaha, Nebraska. These Tech Prep programs, when implemented, would rely on a strong connection between the high school and a community college that would provide sequential, seamless articulation between courses in technical career fields to encourage larger numbers of students to pursue postsecondary degrees and technical careers. In addition to the technical course sequences, math and science preparation and achievement were emphasized through the development of new academic courses that presented abstract content applied to technical contexts rather than in the absence of such problem-solving contexts.

Those that applied as secondary-level-only teams hoped to create teacher collaboration and curriculum integration across academic and vocational subject matter and classrooms. These teams included traditional comprehensive high schools such as Lake Clifton-Eastern High School in Baltimore City, Maryland; magnet schools such as Gateway Institute of Technology in St. Louis, Missouri; and career centers—magnets that students select because of the vocational programs that were not available at their "home" or zone high school—like Jane Addams Business Careers Center in Cleveland, Ohio. Lansdowne High School, another comprehensive high school in an outlying suburb of Baltimore applied and was admitted to the Network in 1995. For each of these secondary schools, the funding from the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins II) was intended to improve both the vocational curricula and pedagogy as well as the academic preparation for students in these courses. Although lacking the explicit articulation agreements with a particular postsecondary institution, the objectives of the secondary teams included better preparation of students for postsecondary training and degrees as well as employment.

Like all Perkins II funds recipients, the Urban Schools Network teams were required to abide by the legislation's requirements for the use of those funds. During the summer institutes, teams developed strategic plans for initiating or continuing Tech Prep or curriculum integration at their sites. Summer institute

fellows guided the many involved discussions that helped teams address both their specific objectives and contexts as well as the legislated requirements and necessary program components. In particular, the legislation required grantees to ensure equal access to all students. Teams addressed this requirement by including in their plans descriptions of a target student population and specific goals and strategies for including special populations in the new academic and vocational course sequences they were developing.

At the time of the summer institutes, the vast majority of teams interpreted the legislation's wording regarding access as distinct from and not equal to an objective of whole school reform. Many teams defined their target population by one widely accepted Tech Prep definition at the time—intended for the "middle 50 percent" rather than all high school students (Parnell, 1985). In addition, many teams intended to identify a small pilot group of students for their programs and curricula to reach first. The hope was that successful results with a small group would engender acceptance and support among more teachers and administrators, who may at first have been skeptical of Tech Prep or integrated vocational and academic curriculum. For comprehensive high schools, it was hoped that with this greater support, all vocational courses and students could be included, if not the entire student population. For magnets, or those schools with a career interest already required of all students, teams certainly expected their plans to include all students and the whole school's participation.

While whole school reform was not explicitly the objective of the three institutes or of the majority of teams, the summer institutes were the starting point for many discussions about the benefits for all students of the strategies teams planned to implement back at their sites. For all teams, the wide-ranging debates around various components of team plans invariably found their way to intense discussions about the purposes of education in general, and more specifically, the purpose of the vocational education reforms teams were planning at the institutes. Many teams could not explicitly state objectives to include all students in the plans they drafted because their teams did not include administrators who could approve such plans. However, team discussions reflected an implicit philosophical stance that all students could benefit from strategies that improved student achievement, decreased high school dropout rates and increased opportunities for postsecondary education.

BOX 5-1

NETWORKS FOR HIGH SCHOOL REFORM

In addition to the Urban Schools Network, other groups have been active in college-and-career-preparation efforts. Most notable are the efforts of four organizations that have developed national networks of high schools committed to changing traditional structures and curricula: the Talent Development Schools of the Center for Research on the Education of Students Placed At Risk (CRESPAR), the Coalition of Essential Schools (CES), the Benchmark Communities Initiative of Jobs for the Future (JFF), and the Southern Regional Education Board's (SREB) High Schools That Work network. While each of these efforts share certain principles in common with the high schools identified in this project, there are also distinct differences in philosophy and purposes.

CENTER FOR RESEARCH ON THE EDUCATION OF STUDENTS PLACED AT RISK

As its name indicates, CRESPAR focuses on a different group of students—those considered at risk of dropping out of school at elementary, middle, and high school ages.[1] At the high school level, CRESPAR's efforts involve the reorganization of students and faculty using the career academy model for the entire high school. All students take a common academic core curriculum that meets college preparatory standards. Separate tracks of college prep, general education, or vocational classes are eliminated. Students select a career academy at the end of the ninth grade. Each academy combines internship experiences, a sequence of vocational courses, and integrated academic content, as well as a cohort of students and teachers that remain together for three years. Researchers found very

1 CRESPAR bases its research and work in schools on the belief that "many children, especially those from poor and minority families, are placed at risk by school practices that are based on a sorting paradigm in which some students receive high-expectations instruction while the rest are relegated to lower quality education and lower quality futures." (CRESPAR Research Agenda)

Continued

BOX 5-1

strong positive effects on students' attendance and behavior when the all-academy model was applied to a high school in Baltimore (McPartland, Letgers, Jordan, and McDill, 1996).

COALITION OF ESSENTIAL SCHOOLS

Theodore Sizer laid out the concept of essential schools in his book, *Horace's compromise: The dilemma of the American high school* (1985). With the support of Brown University and private grants, the Coalition of Essential Schools was formed in 1984 with twelve schools. CES now represents more than eight hundred high schools in thirty-eight states. CES focuses on the high school, and its reform is guided by principles aimed at restructuring the traditional high school. These principles emphasize that the purpose of the high school is to help all students learn to use their minds well by demonstrating mastery of a limited number of essential skills and areas of knowledge. To support these goals, schools should get to know students well, see students as workers and teachers as coaches, and encourage them to work together to create a tone of decency and trust throughout the school.

JOBS FOR THE FUTURE

Jobs for the Future is a national nonprofit organization that focuses on the inter-related issues of work and learning in research, technical assistance, and policy analysis. In 1993, it established the Benchmark Communities Initiative (BCI) to support the development of school-to-work model programs and best practices in five communities. In Boston, MA; Jefferson County, KY; Milwaukee, WI; North Clackamas, OR; and Philadelphia, PA, the BCI has three major goals: to create a more academically rigorous and relevant approach to education, to create new labor market arrangements that provide young people with access to quality employment, and to improve education and employment outcomes for young people. At the high school level, the BCI emphasizes the common objectives among many distinct school reform strategies, such as Tech Prep, cooperative education, career academies, and

Continued

BOX 5-1

apprenticeships. The BCI also acts as a neutral outside party to help schools communicate and establish common goals with business, community organizations and postsecondary institutions.

SOUTHERN REGIONAL EDUCATION BOARD

SREB's High Schools That Work began in 1987 in an effort to upgrade the academic and technical preparation of "the career-bound student."[2] Today the network represents some six hundred high schools in twenty-two states. High Schools That Work focuses on two primary goals: (1) to increase the math, science, communications, and problem-solving achievement of students in general and vocational programs; and (2) to integrate the basic content of traditional college preparatory studies with quality vocational studies by creating conditions that support school leaders, teachers, and counselors in carrying out key practices. These key practices emphasize higher academic expectations for career-bound students, a structured school-based/work-based system of learning, integrated academic and vocational curricula, and regular student assessment and program evaluation.

2 The career-bound student is defined by SREB as one who plans to work, attend a two-year community college or vocational-technical school, participate in an apprenticeship program, or enter the military after high school graduation. The career-bound student is not planning to enter a four-year college or university but may make that decision at some future time.

BACK TO SCHOOL

When Urban Schools Network teams returned to their schools after the summer institutes, they faced varying levels of teacher and administrative support or resistance. Tech Prep teams no longer had the luxury of both secondary and postsecondary team members in the same site every day, and joint meetings were nearly impossible without administrative support from both institutions. Academic and vocational teachers returned to their individual classrooms often on opposite ends of large campuses, with no common

planning time or shared students. Those who had not attended the institutes with teams were reluctant to give a stamp of approval to the plans teams labored so hard over. Whether these resistors were principals, department chairs, guidance counselors, or parents, each had his or her own particular reasons for rejecting the proposed curriculum, teaching, or scheduling changes.

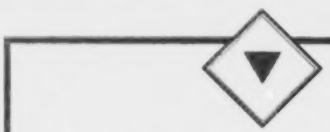
Among Urban Schools Network sites, fourteen reported in 1997 that they were pursuing whole school reforms. Of these, seven said their efforts had stalled because they lacked the principal's support. This manifested itself in a variety of ways, from benign neglect to revolving door changes in the principalship. Two schools, for example, are introducing themselves to their fourth new principal since 1994. Another two are welcoming new principals in 1997 after long tenures with principals who preferred to finish their careers without taking on the difficult changes of whole school reform. In another case, the principal's year-long sabbatical halted some beginning efforts in curriculum and scheduling reform that teachers were unable or unwilling to pursue under an acting principal. For all seven of these schools, the four or five years since their initial participation in a summer institute was the necessary length of time to go through a major transition period and refocus on their reform goals. Optimistic about the next five years, the schools looked forward to new leadership that would involve all staff in reform planning and implementation that would affect all students.

BREAKING POINT

The question of why some Network sites chose to pursue whole school reform efforts differs widely, reflecting the unique contexts of each site. For some Network sites, internal barriers to whole school reform had to be overcome because of external pressures and, in some cases, circumstances that pushed schools to a breaking point. For example, Gateway Institute of Technology opened its doors in 1992 because of a state court order to better address desegregation in St. Louis Public Schools. The St. Louis school board was told to close three high schools and create one new one that would meet mandated racial balances and achievement outcomes. In Baltimore, Lake Clifton-Eastern High School earned the district's most intense scrutiny in 1993 because certain student outcomes did not meet the objectives set for the school in areas such as standardized test scores, attendance, and dropout levels. Faculty were told to develop a whole school reform plan or face school reconstitution with possible reassignment of all staff. In addition, the state of Maryland created a new graduation requirement that all high school students be either "college prep" or "career completers." For schools like Lake Clifton-

Eastern and Lansdowne High, this meant they could no longer offer single vocational courses that did not lead either to skilled employment opportunities or postsecondary training programs. Instead, students who were not taking the traditional four-year college preparation course sequences must complete a minimum of four credits, a coherent sequence of courses, in one career area.

Finally, Cleveland's Jane Addams Business Careers Center needed to address an increase in enrollment as well as increased state graduation and testing requirements for all high school students. On one hand, the newly raised graduation and test requirements supported the school's plan to integrate the vocational and academic curriculum to support students' academic achievement. On the other, students needed to take more math and science courses that would cut into the time the students had previously spent in vocational courses or work-based learning. Their whole school reform plan needed to accommodate the strains in both directions.



The door to whole school high school reform opened when school-to-work initiatives were seen as supporting and expanding earlier Tech Prep efforts while addressing some of the problems they were encountering.

BREAKING AWAY

For three Urban Schools Network sites, external opportunities opened the doors for their high schools to pursue whole school reform. In Omaha, Nebraska, Bryan High School was one of several high schools to receive Perkins funding in 1991 for vocational education reform. At the time, says the school's Perkins II coordinator Tom O'Hara, the school intended to break the mold of the traditional high school and saw its funding as an opportunity to look at the best models in the country. They wanted to identify the most promising strategies and involve the entire staff in a grassroots whole school reform effort at Bryan that would be a model in Omaha, if not in Nebraska.

Then, in 1994, the School-to-Work Opportunities Act called for the development of systems with three major components (school-based learning, work-based learning, and connecting activities) designed to prepare students for both postsecondary education and high-skill employment and backed this with large levels of planning and implementation funding to states that presented comprehensive reform plans. Again, while not requiring participation by all students in the comprehensive high school, the legislation clearly addressed all postsecondary options, from employment to associate degree programs to bachelors degree programs and beyond.

In Oklahoma City and Las Cruces, the door to whole school high school reform opened when school-to-work initiatives were seen as supporting and expanding their earlier Tech Prep efforts while addressing some of the problems they were encountering. Specifically, Tech Prep classes and students were being pushed aside just as vocational classes and students had been in previous years. Tech Prep was seen as a program only for students not able or interested in taking the four-year college prep track, leading to a reputation as second best among students, parents, guidance counselors, and teachers. In addition, these sites felt that without a whole school high school reform plan, they were leaving the traditional college prep track students at a disadvantage. These students were leaving high school with no focused goals other than to go to college. Many still needed remedial course work that reduced their chances of obtaining the bachelors degree, and many more wandered aimlessly through the college curriculum without clear career interests and goals. A school-to-work system addressed the needs of all students and helped these teams shift the emphasis of reform from vocational students to all students.

WHAT DOES IT LOOK LIKE?

Among the seven schools that had implemented and the seven that planned to implement whole school reform initiatives, there were four types of reforms described. The first—implementing alternative scheduling—is not necessarily related to emphasizing career or technical preparation while the other three are. These three can be seen as related to the school-to-work legislation's call for "career majors" available to all students through the school-based learning component. Career majors were intended to provide an organizational structure in the comprehensive high school that allows students to identify career interests rather than postsecondary education plans (e.g., college bound or non-college bound) and to use these interests to guide their course selections and work-based learning experiences.

Again, the legislation does not mandate that schools require career majors of all students, rather that they be an option for all students. A growing number of high schools throughout the country, including those we describe here, see the potential of career majors to improve the relevance and focus of the entire high school curriculum for all students. The three other whole school reforms we will describe are three ways of implementing career majors for all students: single-theme magnet schools, career academies, and career pathways or clusters.

ALTERNATIVE SCHEDULING

Although a more detailed discussion of the issues involved in selecting and implementing various alternative schedules can be found in Chapter Four, we briefly discuss the experiences of two high schools here because their experience with the process was central to each school's vision of whole school reform. Bryan High School in Omaha, Nebraska, began a comprehensive whole school reform in 1991. Tom O'Hara, the school's Perkins II coordinator had the specific task of seeking out innovative models of high school reform for the entire staff to consider. "The leadership of the school district tried not to tie our Perkins money to anything traditional or something that had been done. The idea was that we were going to try to break the mold if we could, and that we had some free rein to do whatever we thought we could accomplish."

The staff eventually adopted a five-fold reform plan. It included adopting the block schedule, introducing writing across the curriculum, developing career clusters for all students, creating an advisory structure in which all staff would participate to replace traditional homeroom, and making the Tech Prep connection to Metropolitan Community College. Over the next four years, the move to a block schedule dominated the staff's reform efforts and truly defined a significant whole school change both for staff and students.

The principal and staff agreed that the schedule change must be a grassroots rather than a top-down effort, and to accomplish this, the school held whole-staff monthly planning meetings for an entire year. Every Wednesday, students arrived two hours late so that the faculty could meet, discuss, and vote on various steps in the process of changing the schedule. Although some teachers were more easily convinced than others of the advantages of block scheduling, the entire staff agreed that consensus was essential. The weekly meetings were sometimes contentious, often intense, but all felt personally committed to the work of airing concerns and disagreements in the hope of reaching new understanding. Gradually, after intense debates that mirrored the discussions the Omaha team held during past NCRVE summer institutes, the staff reached consensus. They agreed, beginning in the 1993–94 school year, to adopt the 4x4 block schedule in which all students would take the equivalent of four full-year courses in one semester, each course meeting every day for ninety minutes instead of the traditional forty-five.

In 1997, four years after the momentous change, Jan Hess, business teacher and internship coordinator, says:

> It was a major, major reform for us, but it's just been extremely successful in my opinion. I doubt you'd find one teacher who was willing to go back to the traditional schedule. It has given us

> a lot more flexibility to help students pass classes and earn the graduation credits they need on time. And, as I see it, probably the biggest advantage has been that it forces teachers to break out of teaching styles and ways of thinking that are not contemporary and helps them meet the needs of today's students.

As mentioned, the scheduling change was only one component of Bryan's five-point whole school reform. While the career clusters were developed (this aspect of Bryan's reform is discussed below), articulation agreements were signed with the community college, writing across the curriculum was implemented and did have a positive impact on student writing skills, and the advisory structure was implemented to establish smaller student-to-adult ratios in the school, the effort to introduce block scheduling stands out in the minds of the staff as the one thing that brought the school together more than any other reform initiative. The full staff meetings broke down barriers dividing academic departments, vocational and academic subjects, and teachers and administrators. It put the focus on student learning and asked an entire staff to find a solution to improve the conditions for all students at Bryan.

Lansdowne High School in suburban Baltimore, Maryland, also felt that block scheduling needed to be its primary whole school reform effort and first implemented it in 1995–96. Principal John Bereska found that the move to block scheduling actually helped Lansdowne provide the career completer sequences (similar to career clusters and discussed further below) required by the state. "The advantage of the block schedule is that it gives us the flexibility to deliver the program to students. Without block scheduling, we would be unable to deliver the variety of career completer programs or give students the time to finish them." The time is necessary because the career completer sequences require a rigorous technical curriculum and at least four credits in a particular field. Says Bereska, "That's where we run into difficulty, and where the block schedule helps us out. Kids are expecting it not to be as rigorous as the academic track, or the course sequence needed to apply to the University of Maryland system, but it is."

The full staff meetings broke down barriers among academic departments, between vocational and academic subjects, and between teachers and administrators. It put the focus on student learning and asked an entire staff to find a solution.

Another advantage of the block scheduling at Lansdowne is the opportunity it provides to integrate vocational and academic curriculum. "Because you basically only take two academic subjects each semester, the horizontal connection or

articulation between these subjects and the career completer courses is there," explains Bereska.

> It's real easy from an administrator's point of view to say, 'Johnny has math and English this semester. Get together and integrate with those academic subjects,' and then do that again the next semester when the student has science and social studies. You can do long-range planning when you do the master schedule so that you can integrate in the curriculum. We schedule the career completer sequences at a certain time during the year so we can give the offerings and actually parallel them with the academics.

SINGLE-THEME MAGNET

When magnet schools first appeared in the 1950s, they were viewed as a way of introducing competition and school choice to public education. About a decade later, they were used in many urban areas to deter "white flight," the phenomenon of white families fleeing from the cities to the suburbs to avoid forced busing. Many magnets use themes that are occupational in nature to provide a context for both academic and technical courses. Examples of such themes are agriculture, aviation, fashion, and finance. In the Urban Schools Network, teams from two such magnet schools attended the 1992 Summer Institute on developing integrated academic and vocational curriculum.

Gateway Institute of Technology is located in St. Louis, Missouri, and its mission is to prepare all students for college and careers in high-tech math and science fields. In order to meet the state court's mandate, three high schools were closed to be replaced by Gateway. One was a math and science magnet that attracted students on a four-year college preparation track but lacked any career preparation or goal setting. A second was a health career magnet that had excellent business partnerships and work-based learning opportunities but lacked a strong academic math and science curriculum to prepare students for health careers in the twenty-first century. The third was a traditional trade school that had declining student enrollment and had failed to keep up with the changing employment or technical skill needs in St. Louis. The answer was a new high school that would include the best of the career preparation and work-based learning components of the health careers magnet, the rigor of the academic preparation for students to attend and graduate from four-year colleges of the math and science magnet, and the labs and hands-on emphasis of the trade school.

For Susan Tieber, Gateway's new principal and former principal of the math and science magnet, the court order gave her the opportunity to hire the faculty

she needed to carry out the school's mission to prepare all students for careers in high-tech science and math fields.

> The 1992 Summer Institute in Berkeley was terrific for our planning team. We were a new high school set to open that fall, and we had only been together as a faculty since the beginning of the summer. The institute, the sessions on integrated curriculum, the plan writing, the intensive discussions about our philosophy and objectives were absolutely essential to our success.

With a student population of nearly sixteen hundred, Gateway is now St. Louis' largest public high school. It offers five career majors within the umbrella theme of technology careers: health, agriculture and biological sciences; computer science and math; engineering; and applied physical sciences. Students take an academic core that is shared across all majors. In the freshman year, all students take an introductory course that provides rotations in each of the five majors to help students make their major selection. This freshman science course also introduces or shores up beginning lab science skills, such as measurement or the proper use of sensitive lab equipment. Beginning in the tenth grade, students take increasingly specific science courses that prepare them for the next steps in the specific high-tech career of their choice. By the senior year, some of these courses may have only ten to fifteen students. Last year, Gateway students took 103 of the 130 Advanced Placement exams taken in the entire district, and the school was named one of ten "New American High Schools" by the Office of Vocational and Adult Education at the U.S. Department of Education.

Cleveland's Jane Addams Business Career Center serves students from throughout the city who are interested in the school's emphasis on school- and work-based experiences that prepare students for six fields related to business careers. Last year, the school increased the freshman class it accepted by nearly one-hundred percent and needed to change the curriculum to prepare the large number of new students for their selection of one of six vocational majors offered at Jane Addams. To do this, it transformed the Diversified Business introductory ninth grade course into a two-period blocked exploratory rotation of the six vocational areas with units called "mini-courses" in employability skills. "In one period, you would have a class in personal banking, parliamentary procedure, or dressing for success," explains Susan Bobey, marketing teacher. "In the next period, you would go to hospitality/food service or the academy of finance and have some actual hands on experiences in those lab areas."

One of the ways in which this ninth grade curriculum change affected the entire faculty was that all staff, whether they were academic or vocational

teachers, were required to teach a ninth grade class to accommodate the increased enrollment. Says Bobey, "Many of the teachers who were teaching the mini courses probably had not taught a ninth grader in fifteen to twenty-five years! It was a new experience for most of them. It definitely opened up people's eyes, and everybody had to work a little harder."

A happy side effect of this change was the greater understanding of each other's jobs among vocational and academic teachers. Previously vocational teachers had been used to small class sizes of fifteen to twenty-five students for 150 minutes each section. A vocational teacher with two sections would see at most forty or fifty students a day. Academic teachers, on the other hand, had dealt with the traditional 150 to 180 students every day in shorter, forty-minute periods. The new freshman Diversified Business class required vocational teachers to deal with large numbers of students and academic teachers to work through double period blocks.

With Ohio's recent increase in graduation requirements, Jane Addams has also had to increase the academic courses it offers. This has cut into the time that used to be available for upper-class students to spend in work-based internships. But, it has helped the faculty focus on improving academic skills through curriculum integration, including in the curriculum of the ninth grade Diversified Business course. Lead teacher Bonnie James talks about the changes that took place:

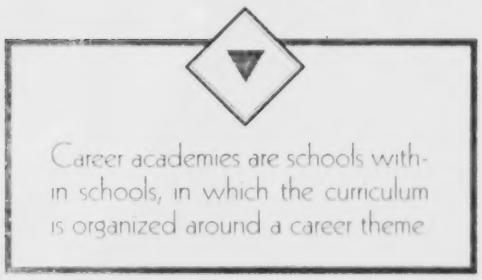
> We used to have to integrate the curriculum with no overall theme or support. That made it very difficult for teachers to conceptualize and implement. Now, we all understand, for example, that the students need more preparation in math problem solving in order to improve their state test scores. So, we'll designate several weeks to focus on math integration with the vocational areas. The curriculum integration has become more understandable, and the need is very clear.

James notes other changes in teachers as a result of the new ninth grade course as well:

> The vocational teachers may understand a little better now how hard it is to keep track just of paperwork for 150 students, rather than for twenty. And, academic teachers now know what it is like to plan for 120 minutes instead of 60. Also, the benefit of the whole plan is that almost every teacher in the building knows almost every ninth grader. Now, as they go through the ranks from tenth to eleventh to twelfth grade, students will have a better rapport with teachers because teachers have had that experience.

For Bobey, this change made an impact. "Before, I probably had fifty tenth, eleventh and twelfth graders maximum during the year. This year, I probably know at least 220 of the ninth graders. That's been really positive for me."

CAREER ACADEMIES



In the career academy model, the school is organized into several "schools within schools". These smaller groupings often are called "academies" or "houses," and their size can range from eighty to three-hundred students (with four to ten teachers) each. The academy model was first developed in the late 1960s in Philadelphia and later in the early 1980s in California. Career academies are schools within schools, in which the curriculum is organized around a career theme. In its first incarnations, the smaller structure was designed to better serve students at risk of dropping out of high school. Since then, however, many high schools have chosen to provide the academy structure for all students, including the four-year-college bound.

In 1994, Lake Clifton-Eastern High School was designated "reconstitution eligible" by the Maryland State Department of Education. This designation was a wake-up call to the staff that it needed to undertake large-scale changes to improve student outcomes like achievement test scores, attendance, and dropout rates to avoid takeover by the state. To meet the state's mandate, the staff wrote a long-range whole school reform plan that stated goals, objectives, and measurable milestones to keep track of progress. Lake Clifton-Eastern's staff felt that restructuring the school into several small learning communities, called "schools," with career themes was the key to addressing the needed improvements in student performance for all students.

In 1996, the school offered six different "schools", each with its own physical location in the building. These are the School of Business and Commerce, the School of Technology and Communication, the School of Humanities, Fine and Cultural Arts, the School of Business and Human Services, the Academy of Finance and Law-Related Education, and the Ninth Grade Achievement School. In addition, academic and vocational teachers were grouped in each school and taught all students primarily in grades ten through twelve. With a few exceptions, most students enter the Ninth Grade Achievement School and make a small learning community selection at the end of their freshman year. (The exceptions select citywide magnet programs that are also incorporated into the schools' career themes and enter the programs/schools as ninth graders.) With the help

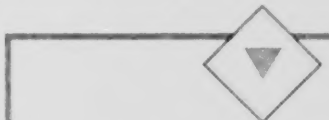
of CRESPAR (see Box 5-1), the small learning communities provide smaller student-to-teacher ratios, extended relationships between teachers and students over three years, a career theme to provide context and relevance to all academic subjects, and an emphasis on student learning and achievement.

CAREER PATHWAYS OR CLUSTERS

In high schools with career pathways or clusters, technical and vocational courses are organized according to broad themes, as they are in academies, but academic classes are not generally composed of students majoring in the same field. Therefore, the traditional academic and vocational departments usually remain as an organizational structure for faculty and courses, but the career pathway or cluster provides guiding principles for student course selections during all four years in high school as well as encouragement for curriculum integration by teachers.

As mentioned above, both Bryan and Lansdowne introduced career pathway or cluster reform along with their block schedules. As described by Lansdowne's principal, John Bereska, the choice of maintaining the academic and vocational departments is one of maintaining an emphasis on instructional quality. "What many schools in our area have found is as soon as you eliminate departments, you lose instructional quality or instructional integrity. Unless you have somebody overseeing that specialty or area of instruction, you lose it."

Lansdowne's career completer areas are not grouped into the usual four to six clusters often found in high schools that pursue this whole school reform initiative. Instead, teachers in various departments, working with county curriculum offices developed required course sequences that were submitted for state approval as career completers. Student enrollment in vocational courses has increased dramatically with the implementation of career completer sequences. Lansdowne now offers more than eleven such sequences. Says Assistant Principal Delores Cassell, "Student interest and student enrollment became so heightened around the career completer areas that you found more departments asking, 'How does my department fit into a career completer?'" Teachers in departments were encouraged to collaborate with each other to develop these programs. For example, a visual arts career completer sequence involves the family studies, art, and business departments.



The career pathway or cluster provides guiding principles for student course selections during all four years in high school as well as encouragement for curriculum integration by teachers.

Bryan High School's career clusters are a way for teachers and students to see the connection between academic and vocational course sequences to meet students' stated postsecondary education and career goals. The five clusters are: business, industrial engineering, health, arts and humanities, and human services. Students select a cluster in the tenth grade, and that selection becomes key when students select the courses they want to take each year.

Bryan's advisory period has become a unique way to involve all staff, not just counselors, in the process of helping students select courses related to their cluster choice. The advisory period takes the place of homeroom and gives all staff, not just teachers, a group of fifteen to twenty students that remain with them for all four years at Bryan. Everyday for thirteen minutes, students meet with their advisory teachers who facilitate a range of discussions with them, from conflict resolution strategies to career exploration activities to crisis intervention. Last year, advisory teachers got involved in the scheduling process, helping students pick the academic and vocational classes they needed and that met their postsecondary goals. Says teacher and internship advisor Hess:

> Several teachers said, "I'm not a guidance counselor. I can't do that." But, we did pretty well guiding those kids into the right classes. We extended the advisory period from thirteen to twenty-five minutes during that phase, and it really helped those kids talk about [their goals] rather than who's the most popular teacher or what friend is taking what classes.

Focusing on the students' goals was also the objective of Oklahoma City and CREATE's whole school reform initiative. When it became clear that the Tech Prep program was not meeting students' needs, the consortium cast about for other models that were gaining attention. Among those was the career cluster model. A team from the consortium visited one such high school that had all students in career clusters and used the clusters to provide connections between academic and vocational classes. One of the school's clusters, called College, was intended for students and parents who felt the other clusters, in the health, business and technical areas, did not meet their postsecondary goal of attending a four-year college or university. The visiting team from Oklahoma City debated the pros and cons of this type of cluster. In interviews with students at the model high school, the team made a surprising realization.

> CREATE codirector Schott describes the interviews:
>
> We talked to the kids in each of the career-related clusters, and they would tell us, "these are my goals, and I'm going to this

community college, and I'll get this degree, and I'm going for this four-year degree." They could tell us exactly what their goal was and how they were going to get there. But, when we talked to the kids in the College career cluster, they would say, "Well, I'm going to college." What are you going to major in? "Well, I really don't know." Their end to high school was college, and they didn't see beyond that. Our whole team discussed that fact and decided we needed to get *all* our students to create specific goals.

As a result, CREATE schools are focusing on six career clusters: health, industrial engineering technologies, business and marketing, natural sciences, social sciences, and fine arts and communication. Two of the clusters are being piloted in three different high schools. One high school will have four clusters in place in 1997–98, while two others will have two clusters beginning then. The consortium expects to have all six up and running in its first three high schools by the year 2000. Each cluster is following the school-to-work model, incorporating school-based learning, work-based learning, and connecting activities.

They have done away with the applied academics courses they had originally added as part of their Tech Prep plan because they felt they were a manifestation of the "separate but equal" philosophy that contradicted their objective of reaching all students.

The school-based learning is based on creating relevance to academic content by relying on specific problems and projects that are related to actual situations faced by the partnering workplaces in each cluster. The consortium has done away with the applied academics courses they had originally added as part of their Tech Prep plan because they felt they were a manifestation of the "separate but equal" philosophy that contradicted their objective of reaching all students. The work-based learning includes a sequence of activities from less structured job shadowing and company tours to more structured internships. Importantly, these work-based activities target both students and teachers, to emphasize the need for teachers to gain experience in the workplaces associated with their career cluster in order to create relevant classroom lessons and integrated projects.

Finally, the consortium provides essential technical assistance and support for teachers in the planning and beginning implementation stages. Modeling the NCRVE summer institute experience, CREATE has sponsored three such summer institutes for the teacher teams developing the cluster models. The week-long intensive professional development activities take place at a location two hours outside the city and include expert speakers who conduct sessions

on curriculum integration; developing work-based learning, and business partnerships; team time in which teachers write the plan that will guide their cluster's implementation; and cross-team networking time for teams to discuss barriers and solutions that they all share.

In Las Cruces, New Mexico, the Doña Ana Tech Prep Consortium has supported the development of career clusters at three high schools in a similar fashion. Rather than creating a separate Tech Prep program only for students who were not taking the traditional four-year college prep curriculum, the consortium wanted a structure that would include all students' postsecondary goals, from employment to two-year associate degrees, four-year bachelors degrees, and beyond. The consortium's advisory committee developed the four career clusters in 1993 with the input of business representatives and the facilitation of a consultant. The clusters are in the areas of business information and management; industrial and technical engineering; health and human services; and arts and humanities.

The clusters were first implemented in the three comprehensive high schools in the consortium in 1994–95 and initially provided a way for students to see the connection between vocational courses and career goals. The vocational course sequences also included the twenty-six articulated programs offered at the community college for advanced placement credit. Since then, the enrollment in these articulated courses has increased one-hundred percent, which has created an increased demand for these courses at the community college.

According to Las Cruces Public Schools School-to-Career Coordinator, John Krause, the consortium's whole school reform effort has had a very strong impact on students and vocational class enrollment. He adds that the next step is to make similarly significant changes among the teachers and the vocational and academic integration of the curriculum:

> Our clusters have aligned the vocational courses in each cluster so that kids can look at a cluster and see which courses they ought to take if they're in, say, the engineering/technical clusters. But the weakness is we really don't have an identification with each cluster on the part of the teachers. So, students in the Principles of Technology class may be in several clusters, one of which is the engineering/technical cluster. Also, we haven't aligned the academics yet.

To try to address this next step, the consortium has supported the development of two academies at two different high schools. The idea was that smaller models of vocational and academic teacher collaboration and curriculum integration would help win the widespread teacher and administrator support needed to take these reforms schoolwide. Krause credits the team's participation in the

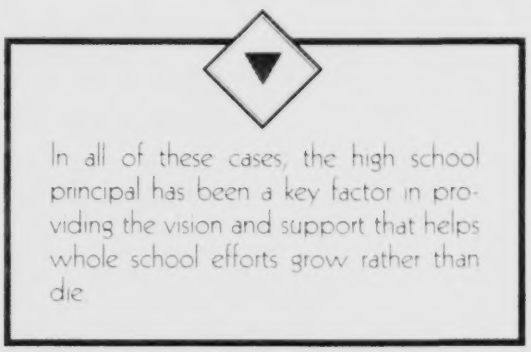
1993 Summer Institute with first introducing the academy concept to the consortium and inspiring them to pursue it as a whole school reform strategy:

> Because of what we did at the institute, we decided in 1993 that we wanted to create a couple of academies that would serve as minilabs for us to see how teachers work together and how we can integrate the curriculum. So we started an academy of business at Mayfield High School and an academy of health at Oñate High School.

The academies have been most successful at integrating academic and occupational education. They have been less successful at providing work-based learning for their students, because funding provided to hire staff was discontinued.

LESSONS LEARNED

For most of the teams in the Urban Schools Network, the period of 1992 to 1997 was a difficult one marked by high staff turnover at even the highest levels and the intersection of many levels of reform initiatives, from building to district, state, and national. For these reasons, it can be seen as a transitional period for many schools, a time in which long-term objectives were reevaluated or created anew, and strategies to obtain those objectives were carefully considered rather than swiftly implemented.


In all of these cases, the high school principal has been a key factor in providing the vision and support that helps whole school efforts grow rather than die.

This transitional period clearly affected the development of whole school reform initiatives. In half of the fourteen schools that reported whole school reform as an immediate goal in 1997, the last five years had been spent juggling leadership changes or resistance, district and state mandates, and national reform priorities. Only now did most of these seven schools report optimism about a critical mass of support among faculty, administrators, and district leaders for the whole school changes they had tried to pursue earlier.

THE PRINCIPAL PRINCIPLE

Among the other seven schools, the last five years presented a range of possible whole school reform paths to pursue. As discussed, some schools emphasized the change to an alternative schedule, while others emphasized the use of

career themes for all students through single-theme magnets, career academies, or career clusters. In all of these cases, the high school principal has been a key factor in providing the vision and support that helps whole school efforts grow rather than die.

Indeed, codirector Carla High at Oklahoma City's CREATE consortium notes that although three high schools are actively pursuing the first model clusters, she observes a clear difference in the rate of changes being implemented based on the active support and involvement of the principal:

> The school where the principal makes a visible statement of support by stating the philosophy and vision of the career clusters in a board or staff meeting is just so far ahead of the school where the principal says to us, 'I'll support it, but you [meaning the consortium representatives] should stand up and give the vision and philosophy statements in the staff meeting.

With the principal's support and vision, however, the success of whole school change is impressive. The principal ultimately makes decisions that provide or remove the time and professional development support needed. This investment is particularly needed in the beginning of whole school reform efforts as the vision is first communicated in a way the staff can absorb and then implemented in a manner that is not overwhelming. Not only are tangibles such as schedules, curriculum offerings, and students' career plans being created and changed, but the intangibles of relationships—between academic and vocational teachers, between students and staff, between administrators and teachers—are also profoundly affected by whole school change. Without a principal's guidance and long-term vision, these changes can cause individuals to dig their heels in deeper, cling to familiar divisions harder, and divide schools even more sharply than ever.

Another factor that helps determine the growth or decline of whole school change efforts is agreement on the definition of the target student population.

ALL OR SOME: WHO IS THE TARGET POPULATION?

Another factor that helps determine the growth or decline of whole school change efforts is agreement on the definition of the target student population. All of the schools described here at some point had to face the question of which students are served by the reforms pursued. As noted, neither federal legislation nor NCRVE mandated that all students in a high school be involved

in the curriculum or structural change discussed. Yet, for these schools, it was important to make the choice to involve all students. Two reasons have been stated: (1) external circumstances mandated a whole school reform plan, whether it was the state desegregation plan in Gateway's case or the threat of state reconstitution in Lake Clifton-Eastern's; and (2) a Tech Prep program for some students was seen as a deterrent to its success because it, like traditional vocational programs before it, was viewed as serving the students not quite able to succeed in the traditional college prep track, as in the case for CREATE and the Doña Ana Consortium.

Although external circumstances may make the direction clear, the debate within schools around requiring all students or not is a thorny one. Schools that are beginning the debate should be encouraged to focus on the needs of the students. While many point to the traditional college prep track as successful because students graduate high school and are accepted at respectable post-secondary institutions, they are encouraged to look more carefully at those students' progress. Do these students obtain bachelors degrees in four years, or do they drop out, try several majors unsuccessfully, or take more than five years to finish? Do they say high school prepared them for the career choices they eventually made?

For students not in the traditional college prep track, the question often revolves around adequate preparation for any postsecondary choices. Do the curriculum and graduation requirements prepare students for desirable employment or associate degree programs? Is it appropriate to divide high school students into the college bound and the non-college bound at the threshold of the twenty first century? While the answers are not simple, these questions help focus the discussion on students rather than on tradition or turf. Many schools are now considering this kind of feedback in deciding whether to pursue whole school reforms.

ASSESSING SUCCESS

Although the whole school change efforts described here are relatively new, it is important to consider what evaluation, summative and formative, can tell us. For example, from the first draft of its plan as a Tech Prep site in 1992, the CREATE team was concerned with its impact on students. When the consortium decided to support several whole school reform efforts, the only significant change in its evaluation plan was the removal of control groups with which to compare its Tech Prep students. Once it was decided that all students would benefit from selecting a career path, the consortium's evaluation plan began to look for overall improvements in its student outcome data. Their evaluation efforts are noting increased student enrollment in academic and vocational

courses, increased statements of understanding that high school course selection is connected to postsecondary education and career goals, increased support from parents for the reform efforts, and increased communication, collaboration, and enthusiasm among academic and vocational faculty.

Other student outcomes that deserve attention include high school attendance and dropout rates, standardized test scores, matriculation to postsecondary degree programs, both two and four-year, completion of postsecondary degrees, and employment in fields related to high school career plans. In addition, certain career exploration software can be tied to academic skills inventories to reveal matches or mismatches between individual skills and strengths and desired career areas. Finally, student and parent surveys can reveal perceptions of the high school as an adequate preparation for postsecondary choices.

While the last five years for the Urban Schools Network was sometimes tumultuous, all of the fourteen teams pursuing whole school change say they are looking forward to the next five years as periods of significant progress toward their goals. Although we have outlined some of the structural differences in achieving these goals and the debates surrounding decisions of what components of the high school should change, the ultimate end is the improvement of achievement and preparation for all students. Using this goal as a touchstone to remind schools of their vision and help revisit specific strategies, the path of whole school change can be successfully negotiated.

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CHAPTER
6

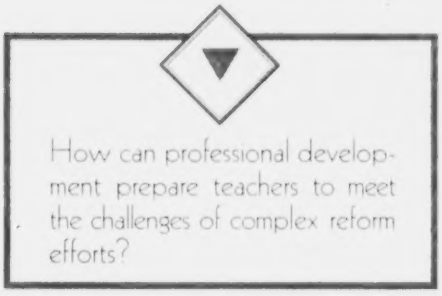
MIMI HARRIS STEADMAN

PROFESSIONAL DEVELOPMENT

A significant challenge faced by schools undertaking school-to-work initiatives is preparing teachers to develop the wide array of skills needed in their efforts to prepare students for both college and careers. Teachers are expected to integrate academic and vocational curriculum, to work across departments and disciplines, and to collaborate with postsecondary and business partners. Teachers, many of whom who have been working in schools since college graduation, are called upon to understand the skill requirements of a variety of workplace settings, and to incorporate relevant examples from other careers into their subject area content. In addition, a growing number of faculty are required to adapt their instructional methods to accommodate new school schedules with longer course periods. School-to-work endeavors demand all this on top of the extensive skill and knowledge base already required of any classroom teacher. How can professional development prepare teachers to meet the challenges of complex reform efforts?

This chapter will provide examples of professional development strategies from several schools that are part of the National Center for Research in Vocational Education's (NCRVE's) Urban Schools Network. As explained in Chapter One, the Urban Schools Network started as a technical assistance effort

designed to provide intensive professional development, including training and planning time, in curriculum integration or Tech Prep for teams of academic and vocational teachers, administrators, counselors, and others. The teams who attended NCRVE's summer institutes of 1992 and 1993 returned to their schools charged with educating and motivating their colleagues about Tech Prep and curriculum integration and with providing some of the training needed to carry out the planned activities. This was a demanding assignment, given the complexity of Tech Prep, curriculum integration, and school-to-work reform in general.



Since 1992, the Urban Schools Network sites have strived to offer their colleagues a variety of professional development experiences and have employed creative strategies to carve out time for staff learning and planning. Illustrations of these activities follow, along with strategies for successful professional development shared by participants in a July 1997 focus group of Network members.

MOTIVATION FOR CHANGE

Before making a commitment to engage in the hard work of integrating curriculum, building business partnerships, or drawing up articulation agreements, educators need to believe that this type of reform effort makes sense. Sending teachers and administrators to large national or state conferences is one professional development strategy Urban Schools Network sites have used to expose new people to the ideas of school-to-work reform. National conferences provide teachers and administrators the time and place to learn new ideas, skills, and concepts. It is energizing and reassuring to learn about the scope of school-to-work efforts and outcomes nationwide. One Urban Schools Network principal explained that he "got religion" at a national conference and returned home motivated to pursue school-to-work planning and implementation.

Another administrator asserted that the value of national networking opportunities "should not be underestimated." He explained:

> I think one of the great advantages of our participation in the Network is that we've been able to bring a large number of teachers and counselors and other high school personnel to places like Berkeley, Baltimore, Washington, and Nashville. For many of these teachers it was their first opportunity to actually leave their classrooms to go somewhere and be treated as professionals, and hear from experts, and share with colleagues from other parts of

> the country. That creates a lot of momentum. This type of experience really energizes teachers and gets them to begin the process of reading, networking, and considering more ideas.

Network teachers reported that they valued the broadened perspective they gained from sharing struggles and success with educators from across the country at NCRVE summer institutes and regional meetings. As one teacher said, "we learned that while things may be tough in our district, it's even worse" elsewhere. Hearing from others also helped people understand that although they still have a long way to go, they had indeed made some significant progress.

Network members recommended sending a group or team of people to a conference when possible, because travel off-site can provide planning and get-acquainted time. Staff from different departments and even different institutions must work together closely in these efforts and travel time simply helps them to get to know one another. Moreover, when removed from the daily responsibilities of school and home, teams often put in extra evening hours when conference sessions are over, to apply what they have learned, brainstorm new ideas, and engage in in-depth planning. Needless to say, cost is a major barrier to broad staff participation in off-site conferences.

Visiting other schools is another strategy Urban Schools Network sites have used to introduce staff to school-to-work concepts. Visits to other sites can inform decision making when considering a major change, such as move to career clusters, academies, or a block schedule. Site visits are especially useful for staff who are opposed to change as a rule, because it is harder to resist when you have witnessed something worth changing to. When you learn from other schools, one teacher reported, "you don't have to reinvent the wheel." Network members noted a positive trend toward the open sharing of ideas across schools and districts.

TEACHERS' ROLES IN A COHERENT PROFESSIONAL DEVELOPMENT PLAN

When asked about features of meaningful professional development, a focus group of Network faculty and administrators agreed that teachers—those who are supposed to benefit from the activity—must have a role in prioritizing staff development topics, and in determining the design. The challenges of dealing with staff turnover while orienting people to school-to-work efforts, and training new staff in the curriculum integration process, brought up an ongoing struggle in staff development, one that parallels issues in instruction for students. How do you deliver training that meets staff at their individual levels of under-

standing, without boring those who have already grasped the concepts? One administrator warned that presenting "the same old hash warmed over" was a guaranteed staff development turnoff. Although focus group members advocated teacher participation in addressing the challenges of planning professional development, they also expressed caution that a good staff development program could not offer all things to all people without being disconnected and incoherent.

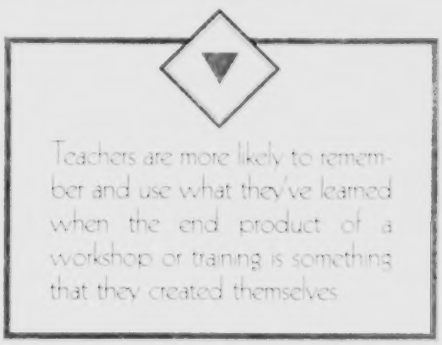
Staff from many Urban Schools Network sites advocated a move toward a carefully planned professional development program that is aligned with the larger goals of the school or district. This trend marks a move away from a "shot gun" approach that targets a single instructional problem in isolation from the larger school context (although this may be needed from time to time), or the "grab bag" approach, in which staff development training is selected randomly from a set of potentially useful topics. This reflects a shift in staff development, reported in the Association for Supervision and Curriculum Development (ASCD) monograph, *A new vision for staff development* (Sparks and Hirsch, 1997, p. 12), away from "fragmented, piecemeal improvement efforts to staff development driven by a clear, coherent strategic plan for the school district, each school, and the departments that serve schools." In a professional development program that is part of a school or district's framework of larger goals, each workshop or other activity provides a foundation for, or builds upon, another, and, in the best cases, evaluations are used to improve future events.

According to the ASCD monograph, within a coherent, strategic plan for staff development there is also a shift from district-focused to school-focused approaches to staff development. This shift has also been evident in the Urban Schools Network. In Las Cruces, New Mexico, for example, a new district-level staff development director position was recently created. While this is a district-level position, the director is focusing on helping individual schools set their own professional development agendas.

As mentioned above, Urban Schools Network teams emphasized the importance of faculty's role in the design and selection of professional development. Moreover, they encouraged, when appropriate, that teachers lead professional development activities. This approach recognizes teachers' individual areas of professional expertise and allows staff to learn from new ideas and innovations that colleagues in their own school have tried. One practice is having teachers who attend national conferences or indepth training programs prepare a mini workshop, presentation, or written report upon return. This brings new information back to the school, while reinforcing the learning of those who traveled off-site. In March 1996, Las Cruces Public Schools held a successful district wide staff development day at Oñate High School that showcased the knowledge of local teachers, and offered participants choices in their learning. After presentations from outside experts, teachers selected from a variety of

workshops facilitated by their fellow faculty members and moved out into the classrooms. Some teachers presented sessions based on what they had learned at other conferences, and a pair of business academy teachers shared their expertise in designing integrated projects, including a regional example from New Mexico in which students developed a business proposal for a chili farm.

Another way that teachers have facilitated professional development is in the role of outside consultants. Staff at Bryan High School in Omaha, Nebraska, indicated that one of the most valuable staff development opportunities in their preparation for a move to block scheduling was a visit from a small group of Colorado teachers. These teachers, who had already experienced the transition were available for one-on-one consulting and trouble shooting on Bryan's proposed curriculum and instructional modifications. Because of their credibility as classroom teachers who had experienced a change to block scheduling, the consultants' warnings of potential pitfalls and shared strategies for success were carefully considered. This example reflects another national shift in staff development, from staff developers who serve only as trainers, to staff developers who serve as consultants and facilitators (Sparks and Hirsch, 1997).


Teachers are more likely to remember and use what they've learned when the end product of a workshop or training is something that they created themselves

A final role for teachers in professional development is that of active participants rather than passive recipients. A Cleveland teacher and frequent curriculum workshop leader notes that teachers are more likely to remember and use what they've learned when the end product of a workshop or training is something that they created themselves. An assistant principal from New Mexico agreed that the most successful professional development events at her school have involved hands-on activities for teachers. "We talk about that for kids," she said, "but how often do we provide that for teachers?" Her words echo the views of the current literature on professional development:

> What everyone wants for students—a wide array of learning opportunities that engage students in experiencing, creating, and solving real problems, using their own experiences, and working with others—is for some reason denied to teachers when they are learners (Lieberman, 1995, p. 591).

As more professional development activities model the type of instruction we advocate for students, perhaps the passive, and rather unenthusiastic phrase, "we were in-serviced" will be uttered less often. In the next sections we consider some of the goals of professional development for school-to-work efforts.

BRIDGING BOUNDARIES AND BUILDING COLLABORATIONS

School-to-work efforts require bridging the boundaries between academic and vocational departments, secondary and postsecondary institutions, and school and industry stakeholders, in order for these diverse participants to work together productively. Fostering collaboration can be a focus of professional development, even within a single school, as illustrated in the following example. Lake Clifton-Eastern High School in Baltimore, Maryland, is so large that it can take fifteen minutes to walk from one end of the building to another. As one might imagine, teachers in one wing of the building were not very well acquainted with those in the other. And as is the case in many schools, including smaller ones, even teachers who had been at the school for years were unfamiliar with the work of their colleagues from different disciplines. Academic teachers, in particular, did not fully understand the work that took place in the Career and Technology Education classes, labs, and studios located in the opposite wing of the building.

To encourage teachers to bridge the boundaries between the academic and vocational wings of the school, staff planned a cross-department visitation day. Under a modified, reduced period schedule, academic teachers visited a number of Career and Tech. Ed. labs and shops, including business education, carpentry, brick laying, child care, and printing.

Academic teachers had an opportunity to consider how the skill and content areas of their disciplines might apply in the broader context of different careers. During a visit to the print shop, the printing teacher stressed how rigorous the grammar and spelling requirements are in the printing field. In some classes, the spelling in an essay may be less crucial than the content, but students' spelling in printing classes had to be perfectly accurate before a text could go out to the public. Print shop teachers worked with English teachers to experiment with editing software, and together they discussed the benefits and limitations of this technology. In the photography lab, math teachers got a firsthand look at what applied geometry might entail, such as the measurements required to properly align negatives during the film development process. The visitation day was rated highly by staff. The classroom visits enhanced academic teachers' perception of the work done in the career and technical fields, and sparked some interest in collaboration across departments.

In Baltimore, Nashville, New Orleans, New York, and other cities, cosponsored staff development events enable high school and college faculty to get acquainted and work together. Sometimes workshops at a college will feature equipment or technology not available at the partner high schools. Network members cautioned that one thing they found frustrating was a training session full of

brilliant ideas and techniques but presented to teachers who lack the resources or equipment required for implementation. While this may be frustrating initially, it also increases awareness. A community college administrator from New Orleans noted that her college computer lab offers technology-oriented workshops, such as training on how to use the Internet and/or Microsoft Word, Excel, or Powerpoint to high school faculty. This exposure can create a demand for resources on the part of the high school teachers that ultimately results in action.

To bridge the gap between high school and college faculty, Doña Ana Branch Community College in Las Cruces, New Mexico, recruits high school faculty to teach dual enrollment courses at the college. With this strategy, high school teachers more fully understand the prerequisite skills and requirements of college courses. This helps them prepare their high school students for success in articulated college courses and promotes communication among secondary and postsecondary faculty.

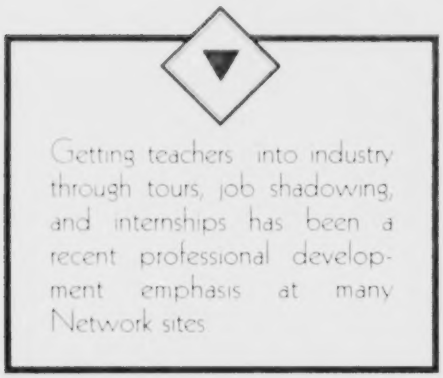
In Baltimore, distance learning technology was another strategy used to bring together teachers from across the district to participate in a series of workshops on integrated curriculum. Workshop participants remained at their own schools at the end of the day, and were able to avoid a commute in traffic across the city, a benefit much appreciated on rainy or snowy winter afternoons. Even some schools that were not fully equipped with interactive technology for distance learning managed to participate using telephone and fax. These workshops, offered via distance learning, required active participation in learning and applying new concepts, with teachers working in teams to develop curriculum.

CONNECTING CLASSROOM AND CAREERS

Another challenge for teachers in school-to-work initiatives is gaining knowledge of the skill demands of various industries, and connecting classroom learning to careers through relevant industry examples. Getting school staff into industry through tours, job shadowing, and internships has been a recent professional development emphasis at many Urban Schools Network sites.

In the spring of 1997, a small group of Detroit educators, including academic and technical teachers, counselors, administrators, and special education consultants, spent a day at a major United States automaker's plant. A district administrator set up the visit with a request for the opportunity to learn about the multiple facets of the automobile industry, and the requirements for potential job applicants. The educators were met by a vice president, plant manager, and human resources staff and given an extensive tour of the plant. The visitors were surprised to see that this modern plant, which was producing one of the

top-selling trucks in the country, in no way resembled their preconceived images of an auto assembly line. The busy three-shift operation required only some fifty people per shift because the manufacturing process was highly automated. Often workers enter commands on computers at one end of the plant that signal automated procedures to begin as far as a football field away.



Getting teachers into industry through tours, job shadowing, and internships has been a recent professional development emphasis at many Network sites.

The educators were also taken through the application and hiring process for autoworkers. They got a firsthand look at different standardized tests—for aptitude, attitude, physical dexterity, and others—required of all applicants for jobs across the auto industry. They also learned that every applicant is required to submit to a drug test. While job candidates can retake the other required tests to improve their performance, any applicant who fails the highly sensitive drug test is immediately excluded from a job in the auto industry. Similar drug testing is now taking place in other industries, such as banking. In addition to the valuable information about skill requirements for autoworkers in a modern assembly plant, the drug test aspect of the application process made a strong impression on the small group of educators, who returned to their schools to share this information with other faculty, who in turn passed on this significant warning to their students.

Across the country, Urban Schools Network sites' relationships with business partners are helping teachers learn more about industry. A Baltimore administrator noted that business partners provided learning opportunities for students and for teachers:

> Our business partners have also been very good about inviting teachers into their sites, which makes a big difference in terms of having teachers want to change the way they teach and what they teach. As an example, [our business partner] invited all of our department heads, as well as our guidance counselor and representatives from the community college, to come in for presentations at their site, so teachers could have a better idea of all aspects of that industry, and what students need to know.

One Network site offered professional development credit for teachers who toured different industry areas. To obtain credit, teachers had to develop a lesson plan that connected a vocational area with one of their courses, and these lesson plans were compiled and distributed among the staff.

Some industry visits expanded into job shadowing experiences. One Network site received a grant to shadow four companies over a two-week period, companies where the school had previously been unsuccessful in placing students. The teachers appreciated the longer time period they were given to visit the companies, especially since the grant required them to document their experience and how they would use what they had learned. Teachers wrote curriculum units after the visits designed to help students understand the skill and knowledge requirements for those fields.

Network teachers from Cleveland, Detroit, Omaha, and other cities are spending extended periods of time in industry settings through internship or externship placements, many of which are paid positions. These work placements allow teachers to learn firsthand what skills students will need in different industries and enable teachers to connect school and workplace learning based on their direct experience in the field. East Senior High in the Akron Public Schools has developed an externship program, in which classroom teachers go to various job sites in the summer, often in pairs of academic and vocational teachers, and are responsible for bringing back what they've learned to the classroom. In Omaha, Nebraska, the Omaha Jobs Clearinghouse helps teachers as well as students find internship placements.

A Detroit Public Schools administrator noted that many teachers now work in industry in the summer, and sometimes during the school year as well. Computer-aided design (CAD) and drafting teachers work in paid, summer-long placements at a major automotive technology center. Many culinary arts teachers keep current in their field by working throughout the year in evening positions in the kitchens of area hotels. In addition, more traditional business teachers are working in the business field outside of school. This experience provides them with relevant workplace examples to use in the classroom. For example, a business teacher from East Senior High in Akron completed a summer externship at a technology and computer firm. An added benefit of her externship placement was participating in staff development training for the company's employees.

Many Network teachers have visited other industries, and sometimes the workplace comes to the school. Business partner representatives have visited Network schools to explain their work to students, and, in some cases, to present workshops for students on topics like time management or interviewing skills. Other teachers have been invited to participate in these presentations, their schedules permitting. This learning opportunity for teachers has the added advantage of marketing industry collaboration efforts to the entire school staff.

CREATING TIME FOR PROFESSIONAL DEVELOPMENT

No matter what schools are trying to teach or achieve through professional development—exposing teachers to industry requirements, training a team in integrating curriculum, or preparing staff for block scheduling—a persistent challenge is finding the time to do it. In their efforts to develop coherent systems for professional development, Urban Schools Network sites still found it necessary to beg, borrow, or steal time for professional development and planning.

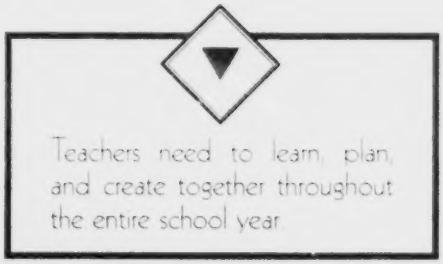
Some Network teachers have asserted, and others would agree, that the worst time for staff development is at the end of the school day, when "you've already expended all your energy." As an alternative, they have petitioned their school boards for designated staff development days, early dismissal or late start days so that staff development activities can be scheduled during the regular school day, without students present. Some Network districts provide substitutes so that teachers can attend conferences, write curriculum, or visit an industry partner. In other districts substitutes are in short supply. One teacher explained that even when substitutes are available, she and her colleagues, working under a block schedule, "are reluctant to miss a ninety-minute class to go to a conference." A business teacher said she avoided using substitutes, explaining that "preparing for and following up after a substitute is far more work than being there."

No matter what schools are trying to teach or achieve through professional development, a persistent challenge is finding the time to do it.

Some Network teachers advocated more paid summertime work and the virtual elimination of staff development while school is in session. One teacher put it this way: "trying to do staff development during the school year is like trying to change a tire while the car is moving." However, eliminating staff development during the school year runs contrary to the notion of the school as a place with ongoing learning opportunities for both students and the adults who work there (McLaughlin, 1992). Teachers, like other professionals, are expected to continue learning on the job, and to upgrade their skills as job requirements change. In school-to-work efforts in particular, teachers need to learn, plan and create together throughout the entire school year. While there may be no perfect time to offer professional development, Network sites employed a number of creative strategies to carve out time for teacher learning.

Teachers at West Charlotte High School in North Carolina, for example, had an extremely short window of time to prepare to implement a new senior project

requirement. Since scheduling the entire faculty for training was not possible in the time available, the school offered flexible videotape training on senior projects. A series of videotapes was placed in the library, and teachers could sign out the tapes for professional development at their convenience. Other schools have left professional development videotapes playing in the staff room. Using a similar approach, at Volunteer State Community College outside of Nashville, Tennessee, all staff development events are videotaped and made available in the library for those who were absent.



Some Urban Schools Network sites have limited the focus of professional development to just one or two goals in a given year, for the sake of time and manageability, and to offer more in-depth learning. In Baltimore County, Maryland, Lansdowne High School opted to focus staff development for one year on the transition to a block schedule. This strategy was an attempt to master one change well without distraction from competing endeavors. At this school, nearly the entire staff elected to participate in an optional week-long summer workshop, offered at different times to accommodate teachers' summer schedules. This lesson-planning workshop was designed to help teachers adapt their curriculum to the new schedule before the school year started, thus saving them time and energy once classes were under way.

Even when schools manage to dedicate sufficient time to professional development activities, teachers still need time to apply what they have learned. For example, an interdisciplinary group of faculty needs time to collaboratively write integrated curriculum units, and academy or career cluster teams need common planning time to develop projects and activities. A fluid boundary exists between time for teacher learning through professional development training, and out-of-class time for teachers to plan and work together.

A group of technology cluster teachers at the former Harrisburg Steelton-Highspire Technical School in Harrisburg, Pennsylvania, developed an innovative short-term approach to carve out some weekly common planning time. Teachers alternated as substitutes for each others' classes, but not as "baby-sitters" who simply monitored students while they completed worksheets or other assignments. Instead, students were asked in advance to generate a list of topics of special interest to them, and substitutes prepared presentations on those topics, based on their areas of expertise. Teachers benefited from common meeting time, and students benefited from guest presentations on topics of great interest to them.

Two aspects of professional development that many Network members felt were lacking at their sites are adequate followup of training and opportunities

to practice and refine skills. Because of the hectic pace in schools, people felt starved for the opportunity to share the results—both positive and negative—of their work in implementing new instructional strategies. At one school, a move to block scheduling was preceded by a few years of intensive staff development, planning time, and open lines of communication. Once the new schedule was implemented, albeit with a positive response overall, the faculty felt abandoned when opportunities for learning about instructional strategies for the block schedule faded away soon after implementation.

Teachers at one Network site came up with a strategy to provide followup for recent training in integrated project development. The principal agreed to their request to set aside time at each monthly faculty meeting to give teachers time to share ideas and inquiries based on their attempts at developing new integrated projects. Some agenda items were presented in writing, leaving more time for discussion. This opportunity to exchange ideas on a regular basis was both productive and greatly appreciated, especially since the exchange took place during regularly scheduled meeting time, rather than in an "add–on" meeting.

When time and energy were in short supply, some Network sites offered incentives, such as professional development credit or continuing education units (which save participants time in the future), to make staff development more appealing. Offering stipends for summer or weekend work is another way to recognize the value of participants' time. In Oklahoma City's CREATE consortium, teachers were given a choice about the format of their summer staff development activities. Some staff chose to attend local workshops, for which they received a stipend and the flexibility of returning home in the evening. Other staff opted to forgo the stipend for the chance to travel to a conference out of town. Other sites have offered minigrants on a targeted theme, such as career planning or integrated curriculum, allowing teachers to focus their work on related areas of most importance to them.

LESSONS LEARNED

Through week-long retreats (see Box 6-1), half-day site visits, two-hour videotapes, or ten-minute slices of faculty meetings, Urban Schools Network members have carved out time for teacher learning and planning. Since 1992, the staff of Network sites have made the most of limited time and resources and provided professional development to build the skills and knowledge required in school-to-career initiatives. In a focus group that looked back on five years of experience in the Urban Schools Network, teachers and administrators shared these guidelines for success:

- Involve teachers in the design and implementation of professional development.
- Value teachers as professionals by inviting them to lead professional development in their areas of expertise and by offering options in staff development.
- Meet people where they are (in the same way instruction is offered to students at their level), while keeping in mind that professional development can't offer all things to all people without being disconnected and incoherent.
- Demonstrate in professional development activities the type of relevant and meaningful learning experiences encouraged for students.
- Make time for followup.

BOX 6-1

PUTTING IT ALL TOGETHER: A LOCAL SCHOOL-TO-WORK RETREAT

NOTE: This is a modified version of an article entitled, "Stretch Your Staff Development Dollars with a Local School-to-Work Retreat" that originally appeared in NCRVE's *Center Work*, 8 (1) 1997.

NCRVE's Urban Schools Network started with a summer institute, and many Network members encourage participation in national institutes or conferences as a motivating introduction to school-to-work reform efforts. But for most schools, it is prohibitively expensive to send large numbers of faculty and staff to off-site workshops. As an alternative strategy, some Urban Schools Network sites have hosted their own summer institute-style retreats, involving staff from one or more schools and districts. Mayfield High School in Las Cruces organized an optional, paid Saturday retreat at the end of the summer, which the majority of staff chose to attend. The retreat offered time to plan and regroup, plus a variety of presentations from staff who had attended other conferences. Administrators' attendance at the retreat demonstrated their strong support for staff efforts.

Continued

BOX 6.1

On a citywide scale, Oklahoma City's Consortium to Restructure Education through Academic and Technological Excellence (CREATE) planned multischool and district school-to-work retreats in the summers of 1996 and 1997, based in part on the design of past NCRVE summer institutes. The Oklahoma City retreat offered presentations from local and outside experts, facilitators for team planning time and industry site visits to major local business partners.

There are several advantages to this local strategy. An obvious one is cost. By staying local, more people can attend because there are few travel or lodging costs (except for invited presenters). Local businesses may be willing to provide refreshments, meeting space, and workplace tours. This brings up another important advantage of local events—the potential for involving a variety of stakeholders in your school-to-work efforts, including additional staff, postsecondary partners, parents, students, and business and community representatives. A retreat provides time for planning, learning, and team building among people who will be collaborating for the first time, as well as for colleagues who have worked together for years. And finally, unlike a national conference, a smaller conference or retreat can be custom tailored to fit your regional context.

Based on recommendations from Urban Schools Network sites and lessons learned from past NCRVE institutes and meetings, here are several guidelines to help you get started in designing your own event. First, assemble a planning team with broad representation to bring diverse perspectives to the planning table and encourage buy-in. Begin planning by developing a theme for the retreat, and use this theme to drive your conference program. Consider the following four key features of a school-to-work retreat program:

1). *Plenary sessions*, such as an opening or closing session, involve all retreat participants. This is the time to energize the group with a dynamic speaker who can convey the theme and purpose of your retreat, and the importance of school-to-work efforts in your region. This is also a good time for participants to hear from students, whose stories about their experiences may be particularly inspiring. Plenary sessions, a time when all participants are assembled in one

Continued

BOX 6-1

place, make evident the sheer number and variety of people involved in these efforts.

2). *Presentations, workshops, and discussion groups*, provide participants an opportunity for learning and applying new concepts and strategies. A retreat design might include two or three different session formats, such as more traditional presentations, interactive, hands-on workshops and discussion groups around a particular topic. Presenters for these sessions could include nationally recognized speakers as well as local talent—teachers, administrators, employers, and other community members. Session topics might include, but certainly are not limited to: "School-to-Work 101," integrated curriculum, assessment and evaluation, designing work-based learning experiences, developing partnerships with industry, alternative scheduling, grant writing, developing career clusters, consensus building, and change strategies.

3). *Team meetings*, the third program feature, are a structured, facilitated, time for program planning and development. A team might include members of a career cluster, an academy, or collaborating faculty from a high school and community college. Facilitators, like presenters, may be local or from across the country. Oklahoma City's CREATE, which sponsored a multidistrict school-to-work retreat in June 1996, hired a cadre of local, regional, and national speakers who also served as facilitators during team meeting time. For some teams, a neutral outsider is the preferred facilitator, while for others a local facilitator, someone who can continue to work with the team throughout the year, is ideal. The product of team meeting time might be plans for a new career cluster, a draft articulation agreement, or a new integrated curriculum unit.

4). *Industry site visits*, a final program feature, are particularly suited to local retreats. Industry site visits expose participants to workplace requirements in their region and may help forge new partnerships between educators and employers, resulting in future mentoring and work placement arrangements. To help participants profit from these visits, the retreat planning team can

Continued

BOX 6-1

prepare guiding questions that target key information about the industry, skill requirements, workforce needs, and the like.

The planning team will encounter several challenging design issues. How much time should be devoted to sessions, and how much time for team meetings? Should the retreat offer an intensive agenda that covers lots of ground in a short time, or a slower pace that allows time for reflection? The planning team may face a "breadth versus depth" dilemma: Should the program offer a broad sampling of topics through brief presentations? Or should it focus on a few topics in depth with half- or full-day workshops?

Urban Schools Network Director, Erika Nielsen Andrew, explains:

> One thing we wrestle with every time we plan an event is balancing a series of tradeoffs: time to learn vs. time to plan, hearing it from the 'experts' vs. figuring it out in discussion groups, meeting everybody's needs vs. keeping it simple. These tradeoffs are not atypical of what classroom teachers grapple with every day. However, negotiating through these issues with a planning team is an important vision and consensus-building exercise for your summer event *and* your larger initiative. It helps you focus on what it will really take to transform schools in your community.

In addition to setting up a planning team, determining a retreat theme, and designing program components such as sessions and site visits, additional planning issues to consider include a planning time line, retreat materials and handouts, marketing and publicity, speaker selection and hiring, training and compensation for facilitators, hospitality and refreshments, transportation and parking, adequate staffing for registration, meeting room setup and audio visual needs, and a process for evaluating the event and following up with presenters and participants.

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CHAPTER
7

GUIDANCE AND COUNSELING

Statistics concerning educational attainment and participation in the workforce tell us that students will be better prepared for the demands of a technological society if they are able to connect their educational experiences to the world of work. The skills needed to be an effective worker, family member, and lifelong learner are becoming more sophisticated and require more than the basics. In today's environment, employers are seeking increased productivity and response to customer needs. Technology continues to transform the workplace, eliminating less skilled jobs and demanding higher levels of communication, mathematics, and analytical skills.

Career information and labor market data play a critical role in career decision making. Translating this information through guidance and counseling programs is sometimes a daunting task. Counselors must be knowledgeable about the variety of options and opportunities available to students, and they play a vital role in explaining this information to students and parents. One purpose of career guidance programs is to provide a sequence of activities and experiences designed to help students plan and develop their career options.

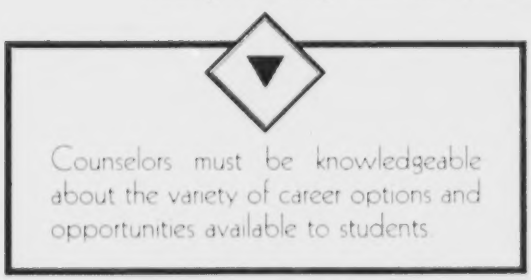
The National Center for Research in Vocational Education (NCRVE) summer institutes were designed to provide technical assistance to urban school

districts and community colleges in planning and integrating academics and vocational education and creating a seamless transition pathway for students via a two plus two program of Tech Prep. Each district and community college was asked to identify teams of ten to twelve persons, including vocational and academic teachers, a counselor, a local administrator, and a state administrator to develop a strategic plan for initiating or continuing the development of integrated programs and Tech Prep sequences in their district or program delivery area.

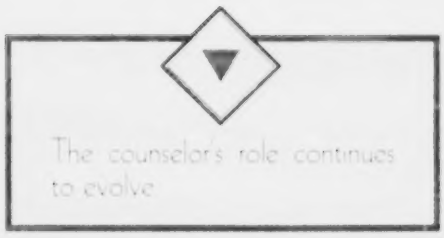
NCRVE envisioned that participants at the institutes would develop model strategic plans and return home to share their models with other educators. The utilization of a core group of schools and colleges connected in a network was seen as a strategy that would allow members to exchange information and solutions to issues surrounding the implementation of integrating academics, vocational education and Tech Prep. An important component of each strategic plan was guidance and counseling.

THE COUNSELING COMPONENT

Teams attending NCRVE summer institutes received information and technical assistance about the role of guidance in integration and Tech Prep delivery systems. The regional meetings held during the first years of the Network also provided opportunities for the sites to share their efforts through cross-site collaboration workshops and focus group sessions. NCRVE staff followed up with Network member schools via telephone and site visits, and shared information through mailings and the *Urban Update* newsletter.



During the focus group interviews in July 1997, several sites indicated that when they first started out in the 1992 and 1993 Summer Institutes, there were great plans to develop comprehensive guidance and counseling programs. This included developing strategies to help students address specific career goals, cross-visitation of counselors among secondary and postsecondary institutions, secondary student visits to technical career areas of business and industry, mentors, development and purchase of career development videos, and individual student portfolios. When teams returned to their sites in the fall after the initial summer institutes, some of their well-developed plans ran into difficulty. The schedule for the school year had been set and it was not possible to meet objectives for enrolling students in career courses or to assign common planning time to address development of student portfolios. In other situations plans moved forward without major obstacles.



Representatives from several sites said that providing staff development to guidance counselors was critical to the success of their program. They indicated that many counselors have not had the opportunity to work in business and industry and therefore see the four-year university as the only viable post–high school path for students. The extent to which people have the opportunity to share actual work experience brings a lot of strength to the program. The team worked to have all teachers and counselors involved in a work shadow experience that would broaden the perspective of the counselor. This chapter will highlight some of the strategies initiated by Urban Schools Network sites to provide career information to students and parents.

IMPLEMENTING THE PLAN

AKRON, OHIO

Akron, Ohio, Public Schools has implemented a Career Prep program utilizing the expertise of three teachers in three middle schools by rotating the teachers every twelve weeks. One teacher introduces basic computer communication skills used in business and industry (word processing, spreadsheets, and data management). A second teacher introduces students to technology of the workplace such as computer-assisted design (CAD), electricity and electronics, automotive technologies, computer numerical control (CNC), and other manufacturing processes. The third teacher is responsible for developing student career plans with a focus on assessment, exploration, job shadowing, and the development of mentors from business and industry. The city of Akron has invested $200,000 through an Enterprise Community grant in the three schools to break the cycle of poverty in their communities by introducing students and parents to career areas that are important to the community and in short supply. Learning activities used in all program segments are encouraging the development of skills in communication, math, science, social interaction, reasoning, and problem solving. Some projects have helped students recognize the important role cultural diversity has played in the development of local businesses.

Career Prep students are involved in career activities with representatives of city government and other key partners in the business community. The

project is articulated with the East High School Technology Education Program. At the ninth grade students work in teams exploring the technology of business and industry. This program is the foundation course in the technology area for Tech Prep. Students work in teams exploring the use of technology in business and industry. At higher grade levels, the students can choose to specialize in and expand on different technologies. The program stresses competencies in core subjects by integrated instruction in science and math. Local businesses have identified a Tech Prep Competency Profile that provides insight to occupational interest areas. School-to-work initiatives are enhanced through the Tech Prep curriculum by business/industry internships and apprenticeships.

The Career Prep activities have enabled Akron Public Schools to collaborate with parents, students, the Ohio Department of Education, the University of Akron Community and Technical College, Akron City Government, the Society of Human Resources Management (SHRM), and many local business and industry leaders.

MILWAUKEE, WISCONSIN

South Division High School is located on the south side of urban Milwaukee. It serves a diverse community and student population. Many of the students come from low income, unstable households and in many homes English is not spoken fluently. The cultural, language, and economic diversity of the student population poses challenges to educators. Statistics indicated that the school's academic achievement levels were declining.

The school decided to reorganize the student body into five focus groups: Cyber Academy, Engineering, Allied Health and Human Services, Urban Planning/Business, and Multicultural Arts. Each focus group has an assigned group of teachers as well as an administrator and a counselor. There are three bilingual families within the focus areas. Focus groups at the high school are articulated with the Tech Prep program at the Milwaukee Area Technical College.

Ninth and tenth grade students receive weekly career development and guidance within their family focus group. Each family group is assigned a guidance counselor who attends planning sessions with teachers twice a week. The group works to coordinate their instruction and to establish the connections that exist between subjects. Curriculum development resources have been designated for incorporation of career development and guidance activities within the curriculum.

The students attend activities at the downtown Milwaukee Career Counseling Center where they participate in career exploration activities and utilize resource materials. Students can also use the career guidance program available on their library computers. Selection of a career major, development

of a career plan, and initial work on a career portfolio was achieved by one hundred percent of the ninth and tenth graders. The goal is for students to maintain these portfolios through their senior year.

Counselors have specific responsibilities to help plan and implement classroom based developmental career guidance activities so that educators and business, industry, and labor representatives become actively involved in the delivery. They must ensure that all students have interest and aptitude testing, labor market information, and information about postsecondary options.

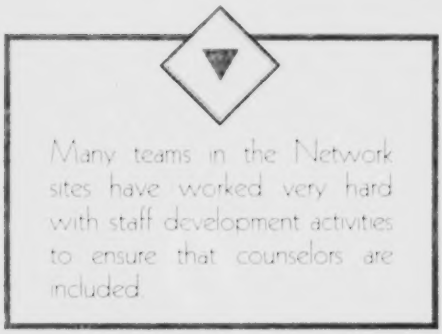
South Division is proud of its tradition of parent involvement. The South Division Family Academy was established in 1995 in response to a needs survey of parents. The Academy has been instrumental in facilitating communications between the school and the parents via home visits, telephone calls, and a monthly newsletter that goes to families in four languages. Educational opportunities in the form of classes in English, citizenship, and technology, along with entrepreneurial field trips have been open to parents. A family service center open from 8 a.m. to 8 p.m. has been funded in collaboration with the governor's office.

Parents have played a key role in the career implementation activities at the high school. They are asked to help select focus programs for their children and are invited to participate in the common planning hour of each weekly focus group. They are also partners in providing academic and social support, work experience, and community activities for students. The school has a monthly parent newsletter and plans to expand educational programs and activities for parents. The school ensures the inclusion of parents at meetings and special events by making translators and members of various ethnic groups available to interpret and inform parents.

OKLAHOMA CITY—CREATE CONSORTIUM

The Consortium to Restructure Education through Academic and Technological Excellence (CREATE) consists of the Deer Creek, Crescent, Edmond, Millwood, Putnam City, and Western Heights school districts, the Francis Tuttle Vocational Center, and Oklahoma City Community College. The consortium has been very successful in establishing career cluster teams that include counselors, teachers, administrators, and parents. Using the ACT assessment scores and interest inventories, every eighth grade and tenth grade student is scheduled into a thirty-minute counseling session with their parents. Fifty to fifty-five percent of the parents show up. Representatives of the school districts, vocational center, district office, state agency, and community college assist in the counseling effort, which has raised the credibility and importance of this strategy for students and parents.

The basic strategy is putting together a counseling team comprised of people from across the consortium, which may include a dean of nursing, a math teacher at the college, a representative of business and industry, or the high school principal. With all these areas of expertise in the room, nobody has to be an expert on everything. If questions arise, whether it's a parent asking about college entrance, or students inquiring about job requirements, there is someone in the room who can answer the question.The consortium has resources to enable students to switch career objectives if the labor market data shows there are no jobs in the state in their chosen area. If a student has low assessment scores in math and wants to be an engineer, the counseling team can discuss how much math is needed for that career and how to raise the math scores. These sessions are so powerful because students' interests are identified and career pathways and plans of study for every student are reviewed in a short period of time. Once students have developed their plans, they can enroll and interview for the career center and have graduation checks and community college objectives reviewed as well.


Many teams in the Network sites have worked very hard with staff development activities to ensure that counselors are included.

The area vocational center in Oklahoma City, Francis Tuttle Vocational Technical Center, does not have the capacity to enroll all of the students in the consortium that choose career majors. On-site exploration courses are currently being developed at some high schools in some of the districts to provide job shadowing, mentoring, and other experiences that will keep the student career focused.

BALTIMORE PUBLIC SCHOOLS

Baltimore City Public Schools has a central office education specialist who works with high school guidance counselors and also works closely with the staff from the Office of Career and Technology Education. She has done several things to bring the counseling staff on board. She brought a focus group of counselors from across the district together to assist in the development of student portfolios. While these counselors did not know a lot about career and technical education, they were able to provide a good perspective on what should be in the portfolio. This focus group of counselors also recommended schools for pilot testing the portfolios.

This same counselor has also taken curriculum course sequences to meetings and trained counselors so that they would understand the sequence of courses students would follow in Career and Technology Education and Tech Prep programs such as business technology, graphic arts, child care, health, or auto-

motive programs. Counselors were asked to review the sequence of courses with students enrolled in the programs to make sure they completed all classes in the sequence. It is a slow process, but progress has been made.

Counselors are sometimes overwhelmed by the number of students in their counseling load and the multitude of school improvement activities, testing, and administrative priorities that make up their daily schedules. Clearly the goals of the Urban Schools Network teams cannot be fully achieved without a true partnership with guidance counselors. It is essential that education professionals respond to the developmental needs of all students by providing career development and life management skills that they will need to succeed in the work force and in continuing education.

CHALLENGES TO GUIDANCE AND COUNSELING

Many Urban Schools Network sites started their guidance and counseling practices with a great deal of enthusiasm. Upon returning to their sites, however, they found themselves struggling to keep the team focused. The counselor's role in terms of vocational education, Tech Prep, and school reform continues to evolve. It has been a challenge for counselors to bring experiences from the world of work to students without having some of those experiences themselves. Many Network sites have worked very hard with staff development activities to ensure that counselors are included. Counselors have had the opportunity shadow individuals in business and industry and can now speak from experience about certain careers. It was important for counselors to be aware not only of four-year university programs for students but also of careers that require a two-year associate degree or those career paths that culminate with a certificate from the community college.

CHAPTER
8

CAROLYN DORNSIFE

THE POSTSECONDARY PARTNER

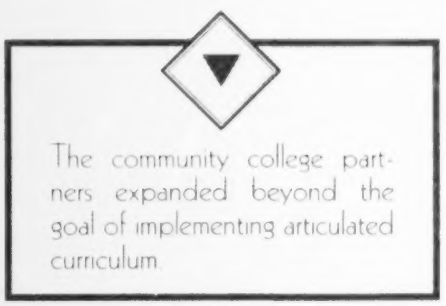
One approach to improving the transition of youth from school to work involves steering them toward the pursuit of advanced training and education at the postsecondary level. As mandated in the Tech Prep Education Act, Title IIIE of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins II), the articulation of secondary and postsecondary institutions' courses and programs was a primary component intended to ease the transfer of students to college, reduce or eliminate remediation, and prevent duplication of course work and credits.[1] Most Tech Prep consortia required students to develop educational plans that included potential postsecondary choices as a means of encouraging early planning. Over time many more consortia have also provided some form of workplace experience, to help students make the link between education requirements and their career choices. These approaches to implementing Tech Prep are likely to be building blocks for school-to-work systems in some local partnerships (Silverberg, 1996).

[1]Articulation is defined as the cooperative effort of educational personnel in the same or different administrative units to provide a continuous program of education from educational level to educational level without duplication or gaps in a program of studies which is directed toward specific goals (Bushnell, 1978).

In support of Perkins II, and given the purpose of the National Center for Research in Vocational Education's (NCRVE's) Tech Prep summer institutes (see Chapter One), NCRVE required the Urban Schools Network teams to include representatives from the community college, both academic and vocational teachers, an administrator, a placement officer, and any other appropriate staff member. Ideally, the written team implementation plans included a description of current and projected activities related to articulated curriculum, integrated courses, and the sequencing of courses in selected technical program areas.

THE CHANGING ROLE OF THE COMMUNITY COLLEGE PARTNER

Based on responses from Network members participating in the July 1997 focus group interviews, there is almost unanimous agreement that the summer institute teams were composed of the correct secondary and postsecondary representatives—the appropriate people for initiating and sustaining the post-secondary-secondary partnerships mandated in the Perkins legislation. Over time, many of the original team members moved on to other jobs and were replaced by new members. Fortunately, for some teams, the momentum of implementation was not adversely affected by the personnel changes. This continuity is often attributable to the belief that in the early years (1992–93) Tech Prep initiatives were overwhelmingly seen as needing strong, focused efforts from secondary school personnel. In short, the community college partners pursued curriculum articulation, and tried to be cautiously optimistic about the projected numbers of Tech Prep graduates who might attend their institutions as a result of completing articulated course sequences (among other experiences).



To be fair, the degree of cooperation between secondary and postsecondary partners has not been the same for all teams. For some teams the process of bringing the two institutions together has started and stopped several times, in some cases stopping altogether. The common problems of "turf issues," staff turnover, and changing leadership commitments have typically been the barriers to preventing a sustained working partnership between the high school and community college. Strategies to overcome these ongoing challenges are discussed later in this chapter.

In working with the secondary schools, the community college partners expanded beyond the goal of implementing articulated curriculum. In partic-

ular, many postsecondary representatives remarked during the focus group interviews that "we always had articulated courses and programs," but in the process of implementing Tech Prep initiatives they identified a variety of changes that took place on their respective campuses. For instance, they reevaluated student learning styles, developed applied courses, created teacher internships, improved concurrent enrollment efforts, designed and implemented team-taught courses with high school and college faculty, evaluated and changed entrance exams, and even changed a citywide transportation system to bring more students to a campus.

Many of these activities are described in this chapter, but this simple list of changes indicates that the colleges implicitly supported a vision of Tech Prep that moved beyond the creation of articulated courses. Instead, Tech Prep serves a bigger purpose, one of showing students a pathway to college, and showing the community at large that a significant number of students need better preparation to enter either the world of work or the higher education system.

CURRICULUM CHANGES — ARTICULATION AND MORE

An examination of background documents from Urban Schools Network sites, such as team plans, progress reports, and site visit reports, indicates that most sites can provide lists of articulated courses or examples of articulation agreements. The process of developing these courses and agreements has typically been as simple as one high school teacher contacting a community college instructor (or vice versa) and getting together to share syllabi and align their courses. This type of one-on-one course alignment has generally taken place with career-technical courses, such as automotive technology, child care, or culinary arts, but academic courses have also been affected. In fact, some sites, like Oklahoma City's Consortium to Restructure Education through Academic and Technological Excellence (CREATE), are tackling the challenge of aligning curriculum from grades nine to fourteen in such career-technical areas as health.

Turning to changes in academic curriculum at the community college, some examples include the teaching of English at Volunteer State College (Nashville, Tennessee) using a work-based approach to the curriculum, as opposed to a strictly writing- or literature-based approach. At Delgado Community College (New Orleans, Louisiana), English and speech faculty have incorporated the Secretary's Commission on Achieving Necessary Skills (SCANS) skills into their curriculum. As the result of high schools using applied curriculum, the Nashville team has implemented applied algebra at the college, and applied courses have been incorporated into the developmental studies offerings at

several colleges (such as Milwaukee Area Technical College in Milwaukee, Wisconsin, and Doña Ana Community College in Las Cruces, New Mexico).

In several colleges the evaluation of entrance examinations has lead to changes in relevant academic courses. For instance, the Brooklyn, New York site, consisting of George Westinghouse Vocational and Technical High School and New York City Technical College, wanted to improve students' writing skills, and, in turn, increase the number of students passing the technical college entrance exams and their first year of college English. In a three-year, three-stage effort, the high school instructors first changed their courses to include skill areas tested on the entrance exams. Next, the high school and community college English instructors collaborated on developing a writing course taught on Saturdays to students who would be attending the college in the fall. Finally, using data from students who passed the writing exam, but failed to complete their first year of college English, the community college instructors are working with the high school teachers to develop a curriculum for students to achieve the skills necessary to pass the entrance exam and complete college-level English courses.

IDENTIFYING AND FOLLOWING STUDENTS

Given the mandate to develop articulated curriculum and help secondary students transition to a postsecondary institution, a logical goal was to try and measure this outcome. To accomplish the goal of tracking students from the high school into the community college, however, it was necessary to define and identify who a Tech Prep student was. For the Network sites that selected and pursued this goal, accomplishing the associated tasks continues to be a challenge.

For instance, in the years immediately following the passage of the Tech Prep Act, the sites grappled with such fundamental issues as defining Tech Prep, deciding who was the "neglected majority" student, and deciding whether Tech Prep was a comprehensive education reform initiative that served the entire student population. As time wore on, some sites resolved these issues and were able to identify "Tech Prep students." However, for most sites the fundamental issues became more complex and numerous following the passage of the School-to-Work Opportunities Act of 1994 (STWOA). In particular, one of the greatest challenges tended to be determining if there was a distinction between a Tech Prep and a school-to-work student.

In agreement with the implementation trends identified across the Network sites, Silverberg and Hershey (1994) reported similar results in the federally funded evaluation of Tech Prep conducted by Mathematica, Inc. Specifically,

based upon their 50-state survey of Tech Prep consortia, the researchers noted that "in 1993 many Tech Prep consortia were in the process of creating a computerized student database, but only 2 percent were actually testing such a system" (p. 30). In short, very few consortia had completed the process of defining who a Tech Prep student was and using this definition to create a database.

The role for the community college partner in identifying and following students has varied among Network sites. Initially, some sites, such as Oklahoma City's CREATE, used the enrollment in articulated courses as a means of identifying a Tech Prep student. Using this definition, the college targeted these students for recruitment, and modified its system of student records to "flag" students from local high schools who had enrolled in and completed articulated courses.

In the majority of Urban Schools Network sites, however, increasing numbers of Tech Prep graduates are just beginning to enter the community college campuses. Without significant numbers of these students enrolled at the college (depending on the size, perhaps three hundred students per high school district enroll at the college), completing the identification and followup tasks continue to be major challenges for both secondary and postsecondary institutions. Part of the dilemma is deciding how to make changes in a systemwide student database when confronted with reduced personnel and financial resources and pressure to implement competing projects.

While acknowledging these problems, it is important to recognize that since the passage of the STWOA in 1994, most Network schools do not distinguish between Tech Prep students and other students. Instead, most team members describe a common experience that all students are eligible to participate in, hence, it becomes more difficult to define a "target student population." For instance, all high school students can enroll in articulated courses, participate in work-based learning experiences, declare a "career major," and complete a four-year education plan that is on file in the guidance counseling office. For postsecondary partners, though, these students affect their institutions after capitalizing on articulated courses. These issues are discussed in greater detail in Chapter Nine.

SKILL LEVELS OF STUDENTS AND REMEDIATION

Despite the ongoing problems with formally identifying students, several community college partners report that their faculty say they have better prepared students in their classes. These reports are typically anecdotal and in career-technical courses. For instance, at Delgado Community College in New Orleans, students are asking for the opportunity to do projects, and the faculty are reconsidering the types of teaching methods they use in the classroom. There's also an emphasis on team building and the use of student teams to complete course work.

OTHER LINKAGE ACTIVITIES — BEYOND ARTICULATION

Many of the community college partners nurture their relations with secondary school personnel and students through other activities besides curriculum development. In particular, several Network members remarked during focus group discussions that campus visitations and student shadowing experiences had increased at their site. These are often labor-intensive and time-consuming activities to plan and organize, but the outcome is well worth the effort. "These affective activities cannot be underestimated," remarked the Tech Prep coordinator at the college. For instance, George Westinghouse High School students are paired up to shadow a New York City Technical College student in his or her career area of interest. Just having a full day of conversation with someone who may have graduated from their high school is a great confidence booster and a source of information about the college.

The frequently missing link is having the high school guidance counselors come to the college campus.

In North Carolina, West Charlotte High School and Central Piedmont Community College are using community college students to give presentations at the high school on the career-technical programs offered at the college. The college student typically attended the high school and can make links for students between courses and teachers at the high school and those at the college. Student-to-student recruitment is also being considered at other sites.

The frequently missing link is having the high school guidance counselors come to the college campus. During July 1997 focus group interviews, several of the postsecondary partners commented that more students would know about what the college has to offer if the high school guidance counselors were given an intensive orientation to the campus, the career-technical offerings, and the career pathways provided to four-year universities.

WORKING WITH BUSINESS AND INDUSTRY

Another way for the community college partner to nurture Tech Prep and school-to-work initiatives is by creating new roles for their business and industry partners. For example, in focus group discussions some postsecondary representatives from New Orleans, Charlotte, and Las Cruces described the impact

of recent teacher internships on their faculties. In every case, the experience has reaped multiple benefits. For example, in New Orleans, during the summer, high school teachers and community college instructors volunteer to participate in a full day of training in the "human resources" department of a local business partner. They learn firsthand what the interview process is all about, what a resume must contain, and the types of skills the employer is looking for in entry-level employees. The coordinator of these internships reports that the teachers typically return to the classroom energized and with a wealth of knowledge in new technical skills, applied academic skills, and targeted employability skills. This knowledge is incorporated into the course curriculum, and the student's skills can ultimately meet the requirements of a potential employer.

In addition to providing learning opportunities for faculty, business and industry partners are going to high schools and colleges to recruit students for internships. For instance, the New Orleans site has been approached by several local banking establishments to employ high schools students in the summer while they are concurrently enrolled in a college finance course. In Detroit, an automotive company recruits high school students for summer internships and works with the local community college automotive technology instructors to ensure that these students can participate in concurrent enrollment opportunities and additional workplace experiences.

At some sites, business and industry representatives have gone outside the immediate community to recruit employees for what are considered "good jobs." In Nashville this action has resulted in high schools and community colleges working together to ensure that local graduates have the skills necessary to fill the available job opportunities. Furthermore, it has sensitized the public to the fact that the community college can provide the necessary training to secure those jobs and pursue a career pathway with many future opportunities.

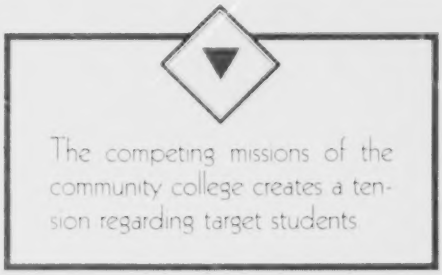
LESSONS LEARNED — ▲▲▲ OVERCOMING BARRIERS ▲▲▲

The all too familiar "turf" barriers between secondary and postsecondary institutions continue to be a challenge for some Network members. However, in focus group discussions at the July 1997 meeting there was widespread agreement from the postsecondary representatives that simply going and meeting people face-to-face was an important means for overcoming this obstacle. "In the beginning, one of the things we did at the college to bring our high schools on board was to conduct staff development training at the secondary level," remarked a representative from Volunteer State Community College in Tennessee. Another technique for confronting the turf barrier was implemented in Oklahoma City

"As the fiscal agent, we were in a position to see which teachers were really on board in terms of supporting the changes we wanted to implement, and we rewarded those teachers by sending them to workshops and conferences," commented the School-to-Work Coordinator.

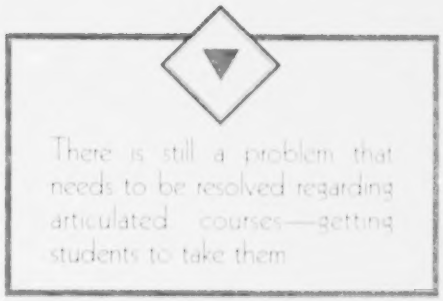
These strategies might also be helpful in overcoming additional problems team members mentioned during focus group discussions. For example, the competing missions of the community college creates a tension regarding target students. Often the postsecondary partners must choose between serving adults and providing job training programs versus serving recent high school graduates and implementing articulated course sequences. In general, there is no definitive solution to the problem of which population to serve, the college must "do it all," but some students are likely to benefit more than others. There was widespread agreement among the postsecondary representatives that curriculum alignment is the key to the college's sustained participation in implementing school-to-work initiatives. At colleges where secondary and postsecondary curriculum has been aligned, the colleges are now in a position to talk more confidently with the four-year institutions about creating a comprehensive career pathway (a goal for the two-year colleges).

There is still a problem that needs to be resolved regarding articulated courses—getting students to take them. It is widely acknowledged by the college partners that high school students who complete dual enrollment and/or articulated courses are not necessarily headed for the community college. Instead, these students often realize they have the ability to compete at a four-year college. If fewer and fewer students take articulated courses, what is the motivation and incentive for college and high school instructors to work together on curriculum alignment? Although the Network members could not solve this enrollment dilemma, they commented that in their experience it was beneficial to continue to create the best alternative pathways to college. Articulated course sequences are a powerful means of keeping students directed, and there is a belief that, as more students experience the benefits of sequenced courses they will recognize the advantages—for example, an easy transition to a career position or to further education. In short, the postsecondary partners support the philosophy "if we build it they will come."



The marketing of school-to-work and career pathways to guidance counselors and parents continues to be a barrier. Although there were no universal solutions, some teams described how they have tried to increase the participation of counselors and parents. For instance, in Nashville, Tennessee, a local

newspaper reported that a major local employer was going outside the city and state to recruit employees. This story had a major impact on the community college because "suddenly" their technical degree programs were identified by parents as a viable means for their sons and daughters to receive the training needed for those jobs. In New Orleans there is a significant effort underway to increase participation of guidance counselors in the summer internships with business and industry partners. This technique which has provided so many insights to teachers and affected curriculum content and instruction so much, should also benefit counselors.



Finally, the postsecondary representatives from Urban Schools Network sites mentioned that additional target technical assistance on postsecondary issues from NCRVE could help overcome some of the barriers related to information dissemination. Perhaps not surprisingly, there was complete agreement that the community college faculty need to understand the concepts of school-to-work and integrated curriculum as much as secondary teachers do.

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CHAPTER
9

EVALUATION FOR PROGRAM IMPROVEMENT

At the 1992 Summer Institutes, the National Center for Research in Vocational Education (NCRVE) helped school teams jump-start the writing process of their implementation plans by requiring specific curriculum integration and Tech Prep program components. The identification of these components was based on research and practical knowledge of how to implement successful Tech Prep and integrated curriculum initiatives (Bragg, 1992; Layton and Bragg, 1993; Dornsife, 1992; Grubb, Davis, Plihal, and Lum, 1991; Hull and Parnell, 1991; Little, 1993). Evaluation was one of the required components with the intention of supporting a data-driven decision-making process as a powerful mechanism for sustaining fledgling reform efforts.

When requiring the implementation of an evaluation component, NCRVE did not take on the role of a third party evaluator for the Network sites. Instead, the rationale was that by preparing an implementation plan, the team members would gain a greater understanding of how, from the outset, they could incorporate evaluation into a complex, multifaceted reform effort. At the same time, to maintain the momentum of implementation, NCRVE provided technical assistance to help sites implement all program components, including evaluation.

EVALUATION-RELATED TECHNICAL ASSISTANCE ACTIVITIES

At the NCRVE Urban Schools Network summer institutes and regional meetings, specific break-out sessions were devoted to the design of an evaluation component. For instance, at the 1992 summer institutes, NCRVE presented sessions on how to translate goals into measurable outcomes, how to identify and use data sources, and how to conduct both formative and summative evaluation activities (process and outcome data, respectively). Over time, evaluation specialists and field consultants from NCRVE provided on-site assistance to individual high school and college sites as they designed and implemented their evaluation component.

The 1993 and 1994 regional meetings also provided opportunities for sites to collaborate and share information on how they were conducting an evaluation. In 1993 all sites were asked to sign a Program Improvement Agreement,[1] and at the 1995 summer institute all team members were required to participate in a hands-on workshop providing a step-by-step process for creating an evaluation plan. During a 1996 Network meeting, all participants attended an open discussion session on evaluation results that had been collected from various Network sites. The purpose was to share information about "what had worked"—the evaluation processes and outcomes that some teams had completed—with the intention that other sites could apply this information.

Finally, along with regular site visits and monthly telephone calls to team liaisons, NCRVE staff members periodically distributed written survey instruments as a means of assessing technical assistance needs and "customizing" methods for helping sites conduct evaluation. Ideas and successful techniques were shared throughout the Network via the *Urban Update* newsletter.

THE CONTINUUM OF EVALUATION

Network sites reflect a continuum of implementation progress in the area of evaluation. Assuming that one end of the continuum is simply discussing design of an evaluation plan, and the other end is complete implementation and

[1] The Program Improvement Agreement was a two-page declaration of mutual agreement between NCRVE and the individual Urban Network sites. The agreement presented seven goals NCRVE embraced for education reform, and by signing the agreement the team members committed themselves to implementing these goals. One of the items (#7) specifically called for the annual collection of outcome information. Technically, the teams agreed to submit information on their progress, both programmatic and student achievement. See the Appendix at the end of this chapter for a copy of the agreement.

the collection of both formative and summative data, Network sites cover the entire length. The reasons for this wide range of efforts are numerous, but stem, in part, from NCRVE's approach to building the Network. We did not want to prescribe, we wanted to provide assistance and have teams of practitioners share information and "lessons learned". In short, over time, we wanted to help sites create a system of program improvement that would ensure long-term sustainability of their education reform initiatives.

Given the methods NCRVE embraced, the purposes of this chapter are to share available student outcome data and to discuss the ongoing dilemmas of collecting data. How do sites overcome barriers to implementing an evaluation component, and how can NCRVE provide assistance?

THE STATUS OF IMPLEMENTATION: REFLECTION ON PROCESS

In reflecting on the process of implementing an evaluation component during summer 1997 focus groups, an overwhelming majority of Network members agree that having to include evaluation in the original plan was good. "It was a start, it made us at least think about what kinds of outcomes we were interested in," stated one of the representatives from the Brooklyn, New York site, composed of George Westinghouse Vocational and Technical High School and New York City Technical College. Furthermore, there was widespread agreement that the required evaluation workshops at Network meetings were helpful. "They were good, if only for the fact that they made classroom teachers think about how student performance could be evaluated."

In some cases, sites are still using the original written implementation plan as a reference, and many of the outcomes they initially identified are ones they'd like to measure (e.g., attendance). When the focus group discussion turned to actual implementation activities, however, participants divided into three groups: those at the secondary institutions, those at the postsecondary institutions, and those with specific leadership responsibilities, such as a Tech Prep or school-to-work coordinator, a project director, or team leader.

At the risk of sounding too simplistic, the feedback regarding implementation of an evaluation component tends to fall under three similar themes:

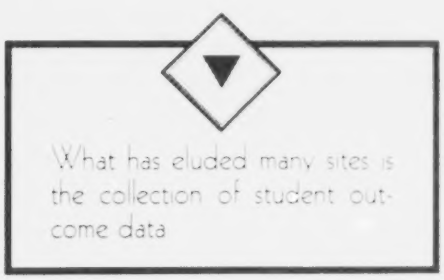
- High school teachers consider the activities of delivering instruction as the most legitimate measure of their job performance.
- Postsecondary administrators cannot evaluate students because of numerous obstacles to student identification.

▲ Tech Prep or school-to-work coordinators often feel pressure that "everyone" perceives them as being responsible for collecting data and leading the effort. At the same time, they are confronted with mixed messages on what their district or state wants to do about evaluation, and they end up devoting a lot of their energy to solving a multitude of immediate problems—"putting out fires," attending numerous committee meetings, and talking with teachers and other administrators.

COLLECTING DATA: FORMATIVE AND SUMMATIVE

As the feedback from Network members participating in 1997 focus groups indicates, an evaluation component is not a straightforward endeavor, it requires the cooperation of many educators. Moreover, these efforts do not operate in a vacuum, numerous changes (personnel, policy, financial) occur in the school context each day. How did sites confront these challenges and what data have they collected for program improvement purposes?

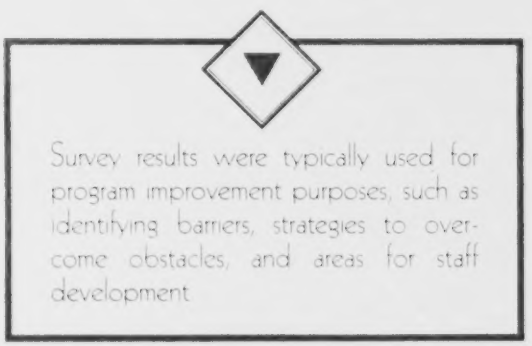
The purpose of this section is to share some of the student outcome data collected by three "early innovator" sites—those that began implementing an evaluation component after the 1992 Summer Institute. The data from these sites are shared in some detail because it provides several examples of how common barriers were confronted, how goals were translated into measurable outcomes, and how such common data sources as the student transcript can provide a wealth of information. Although the material presented in this section is devoted to student outcomes, it is important to note that Network sites were encouraged to collect both formative and summative data (process and outcome). For instance, as indicated by the content of other chapters in this book, many valuable written products were produced by the sites. These products can easily be used as examples of formative data and as means of evaluating progress and targeting areas for program improvement. What has eluded many sites is the collection of student outcome data.



CHAPTER 9

EARLY INNOVATORS: EXAMPLES OF EVALUATION DESIGN AND STUDENT OUTCOMES

The early innovators were those sites that hired a third-party evaluator to design a plan and collect data. These sites were Brooklyn, New York; Omaha, Nebraska; and, Oklahoma City, Oklahoma. By using an outside evaluator these sites surmounted two major obstacles:(1) defining a Tech Prep student, and (2) identifying a specific person who was responsible for determining outcomes and actually collecting the data. Over time, these early innovators have had to reconsider the definition of their target student population (for instance, following the passage of the 1994 School-to-Work Opportunities Act), but they also have baseline data for making comparisons with later student cohorts.


Survey results were typically used for program improvement purposes, such as identifying barriers, strategies to overcome obstacles, and areas for staff development

The third-party evaluators typically sumitted end-of-year reports to the school district and Network sites shared this information with NCRVE. Using these reports, the material presented below is a description of the evaluation designs and the selected student outcomes. At all three early innovator sites, the evaluators gathered survey data on numerous stakeholder groups, including principals, superintendents, teachers, students, counselors, parents, and business representatives. The survey results were typically used for program improvement purposes, such as identifying barriers, strategies to overcome them, and areas for professional staff development. In addition, the evaluators conducted content analyses on such documents as articulation agreements, committee action planning forms, meeting minutes, staff development feedback surveys, and course descriptions for new or modified integrated courses. Clearly, a voluminous amount of process-related information was collected and used to make program improvement decisions, but, because collecting student outcome data is so challenging, we turn our attention to these efforts.

BROOKLYN, NEW YORK

NEW YORK CITY TECHNICAL COLLEGE
GEORGE WESTINGHOUSE VOCATIONAL AND TECHNICAL HIGH SCHOOL

The New York City Technical College (NYCTC) of the City University of New York, and George Westinghouse Vocational and Technical High School (GWVTHS) are career-oriented institutions. Just before the 1992 NCRVE Summer Tech Prep Institute, NYCTC, which has three career divisions that all lead to associate and/or baccalaureate degrees, and GWVTHS entered into a Tech Prep partnership agreement linking curriculum in two departments—engineering technology and business and communications technology. The team that attended the 1992 summer institute was composed of two administrators, three instructors, and one counselor from the college and one administrator, three teachers, and one counselor from the high school.

The core components of this Tech Prep initiative included integrated curriculum, articulated courses, work-based learning, and career guidance and counseling. A Tech Prep student was defined as any junior or senior enrolled in Tech Prep math and Tech Prep English courses.

The Brooklyn site has employed an independent program evaluator since 1992. He has pursued a longitudinal repeated measures design, emphasizing both cognitive and affective student outcomes. The number of measurable goals for Tech Prep have increased over time, as students have matriculated to the college. The sample of Tech Prep students in the first year of the evaluation (1991–92) was limited to 100 high school students; by the fourth year (1994–95) the high school sample increased to 384 students, 119 of them enrolled at NYCTC.

In general, the overall goals of Tech Prep have remained constant (the dependent variables): to improve students' understanding, awareness, interest, and attitude toward technical careers and to improve their grade point averages and attendance. The evaluator selected the 90-item WorkWise questionnaire to assess most of the affective variables. In addition, student academic and career sense of self, was assessed by a 40-item Self Description Questionnaire. This instrument measures four self-concept factors, including math, verbal, academic, and problem-solving abilities. The cognitive dependent variables have included the cumulative high school grade point average and attendance (data were collected from student transcripts).

A variety of variables were also examined, including gender, English as a second language, socioeconomic status, and students' high school major. As participants have matriculated to the college, a new set of college-related performance and competency indices have been identified. These measures include City University of New York (CUNY) Math and Reading exams, college grade

point average, number of semesters at college, transfer to baccalaureate program, and job placement. The evaluator plans to create a comparison group of college students who did not participate in Tech Prep during high school.

EVIDENCE OF PROGRAM EFFECTIVENESS

The following information is based upon Year Four (1994–95) evaluation data. In terms of independent variables, as the Tech Prep program matured over four years, the percentage of female participants grew from seventeen to thirty-six percent. The majority of students (seventy-one percent) reported English as a first language. Students' socioeconomic status was indirectly measured using parents' education level, and seventeen percent of the students reported neither parent had a high school diploma, twenty-two percent had one or both parents graduate from high school, and seventeen percent reported one or both parents graduated from college (twenty percent did not report parental education levels).

ATTENDANCE

Complete high school attendance data was available for eighty-five seniors in Tech Prep, and a chi-square analysis found significant differences between grades. For instance, average days absent in ninth grade was eight, and in twelfth grade the average was three. If attendance can be considered an indirect measure of student motivation, the program is having a positive impact on participating students.

STUDENTS' SELF-ESTEEM

A total of 260 students provided response data on the Self-Description Questionnaire. Two types of self-esteem (math and problem solving) are amenable to change considering the heavy math and science curricular focus of Tech Prep. Math, verbal and academic self-esteem averages remained unchanged, problem-solving self-esteem averages rose with each passing year from 13.70 in 1992–93 to 15.05 in 1994–95 (out of a 20-point total). In fact, by year three a significant difference was found between pretest and posttest scores (t value=2.47, $p<.01$). It can now be stated with some certainty that participating in the Tech Prep program enhances students' problem solving self-esteem.

CUNY BASIC SKILLS TESTS

In Year Four, the program evaluator began to compile data on students who had completed Tech Prep at the high school and continued to New York City

Technical College. Of the eighty-eight Tech Prep students who graduated from Westinghouse in that year, thirty-nine entered NYCTC in the following fall. Of these, thirty-nine percent has passed the three CUNY basic skills tests prior to matriculation. Passing rates for the individual tests were as follows:

- Reading 54 %
- Writing 47%
- Math 67%

Each of these was significantly higher than the experience of the college's general applicant pool. This finding supports the conclusion that Tech Prep is preparing students' transition to college.

NEXT STEPS—USE OF RESULTS

For the Brooklyn team, the evaluation results have confirmed the belief that their reform efforts are working. The component activities they have pursued have had an impact on students' educational experiences—they are staying in school, improving their self-esteem on problem-solving abilities, and passing the CUNY math and reading admission exams for New York City Technical College, on their first attempt. The site's current goals center on expanding their efforts into more classrooms and including different learning activities. For instance, the implementation of a joint (college and high school) school-based enterprise for computer repair is in its second year, with plans to incorporate middle school teachers into the effort. In addition, the staff continue to refine the use of portfolio assessments in various classes, and a "transition math class" (calculus equivalent)—a math class for high school students planning to attend NYCTC in the fall—was piloted during the 1996 school year. Information on job placements for NYCTC graduates who completed the 2+2 Tech Prep sequence should be available by June 1998.

Finally, the team leaders have brought high school and college English instructors together to design an English curriculum that will ensure that all students will not only pass the writing placement exams to NYCTC but will also have the skills to pass their first-year college English courses. This action is the result of presenting the teachers with data on student performance (from both their placement exams and their first-year college English course grades).

CHAPTER 9

OMAHA, NEBRASKA

METROPOLITAN COMMUNITY COLLEGE
BRYAN HIGH SCHOOL

The city of Omaha has some noteworthy history behind its effort to plan and implement school-to-work initiatives. In 1991, then-President Bush selected Omaha as a model city for America 2000, in turn, providing significant federal funds to help implement these reform initiatives and nurture partnerships between education and business. Following these events, in 1992 the Omaha team attended NCRVE's Tech Prep Summer Institute and used that opportunity to further develop a plan for their Careers 2000 project (a part of America 2000). This project used a Tech Prep framework and was intended to create new methods for uniting secondary and postsecondary education with the workplace. It was developed in response to a locally identified need to assist the "forgotten half" youth.

The Metropolitan Community College (MCC) worked with Bryan High School to implement Career 2000 and remains an active partner in its subsequent school-to-work initiatives. The team members include two college administrators, three instructors, and one counselor, and one high school administrator, two teachers, and two guidance counselors. The primary content areas selected for articulation and further development in the Career 2000 project were business education, consumer and home economics, and technology education.

The State of Nebraska defines Tech Prep as a course of study designed to help high school students form a firm academic and technological foundation on which to build their futures. There are four primary Tech Prep components at the Omaha site: articulation, applied academics and integration of academic and vocational education, career guidance, and partnerships. As defined by the Nebraska State Department of Education, a Tech Prep student is someone enrolled in one or more applied or technical courses that are delineated in a Tech Prep articulation agreement (Jurgens, 1993).

EVALUATION DESIGN AND STUDENT OUTCOMES

The evaluation of Careers 2000 began in 1992 with the identification of four goals and numerous sub goals. The goals were articulated in the following areas:

1. Establish a learning climate that focuses on people, processes, and products that result in constant incremental improvement in instruction for students (e.g., involve forty percent of

staff in implementing at least three promising instructional strategies that increase student learning).

2. Restructure the school schedule to increase the amount of time staff have available for interdisciplinary instructional planning and improvement activities (e.g., design a plan for implementing a block schedule).
3. Design and implement career clusters—an instructional delivery system that infuses career readiness and preparation concepts across the curriculum (e.g., identify clusters, implement articulation agreements, ensure that all tenth grade students select a career cluster).
4. Promote workplace competencies. Examine and implement curricular and instructional changes that are relevant to future workforce and career needs (e.g., at least twenty interdisciplinary team projects involve core subject areas, technology, and career orientation).

The evaluators, from the University of Nebraska-Omaha, selected several student outcome measures for a five-year longitudinal study. These measures included: (1) employment status, (2) hourly wages, (3) continuing education, (4) career/job goals, (5) perceived amount of education needed, and (6) the California Achievement Test scores. Data were collected during the fall of 1992, 1993, and 1994 via a survey questionnaire mailed to a sample of 1992 Bryan High School graduates (n=245). Overall, ninety-nine percent of the graduates were contacted at least once during the course of the longitudinal study. By the third year, the average age of the sample was twenty-one years old, and included forty-nine percent females, fifty-one percent males, seventy-nine percent Caucasian, and twenty-one percent non-Caucasian. As presented below, the evaluators reported several interesting findings in their comparison of data from 1992 to 1994.

EMPLOYMENT STATUS

In 1994, eighty-eight percent of the graduates were employed—fifty-three percent full-time, twenty-four percent part-time, and eleven percent in the armed forces. The number of graduates employed full-time increased by twenty-two percent, while the number of graduates employed part-time decreased by seventeen percent from year one of the study. Of the employed graduates, ten percent were working two or more jobs; and forty-nine percent had worked at their present job for less than one year.

TYPES OF WORK AND WAGES

The types of work performed by the employed graduates related to the following occupational areas—twenty-four percent administrative support, twenty-three percent service, eleven percent sales, nine percent construction, six percent administrative/managerial, six percent installation/repair, five percent production, two percent professional, and eleven percent other. Most students earned an hourly wage of $4.25–6.50 (sixty-three percent in year one and forty-two percent in year three), or $6.51–8.50 (twenty-one percent in year one and thirty-six percent year three).

EDUCATIONAL STATUS

Of the forty-seven percent of 1992 graduates who were continuing postsecondary education, thirty-five percent were full-time and twelve percent part-time. This figure represents a sixteen percent decrease in the number of graduates continuing postsecondary education from year one of the study. The types of school attended by the graduates continuing postsecondary education were seventy percent four-year institutions, twenty-four percent two-year institutions, and six percent private career schools.

CAREER GOALS

Of the 1992 graduates, fifty-nine percent identified a career goal that generally requires at least a bachelor's degree. Yet only forty-seven percent of these graduates were continuing their postsecondary education. At the same time, the career goals of graduates remained relatively stable from year one to year three. For instance, during year three the career goals identified by the graduates related to the following occupations—forty-five percent professional, twenty-four percent administrative/managerial, eight percent services, six percent technology, five percent construction, four percent installation/repair, three percent sales, two percent administrative support, two percent production, and four percent other.

CALIFORNIA ACHIEVEMENT TEST

Graduates were grouped according to their Total Battery score from their last high school California Achievement Test. Using this method, 31 graduates scored at the twenty-fifth percentile and below, 130 graduates scored at the twenty-sixth to seventy-fifth percentile, and 53 graduates scored above the seventy-fifth percentile. Of the graduates who scored in the lowest percentile group, ninety-seven percent were employed (seventy-seven percent full-time and nineteen percent part-time). In comparison, those who scored in the middle

and highest groups were more likely to be employed part-time or serving in the military. Of the graduates in the lowest percentile group, forty-two percent reported career goals in a professional or administrative/managerial field that generally requires a bachelors degree, yet only twenty-six percent were continuing their education.

NEXT STEPS—USE OF RESULTS

A good indicator of how the evaluation results were used by the Omaha team members is in the content of Bryan High School's 1994–95 school restructuring plan. The major initiative of the restructuring plan was the implementation of a block schedule. The implication is that the teaching staff supports a major reorganization of time for instructional delivery. Several "school learning goals" were also delineated in the plan, including achievement goals for technology, mathematics and problem solving, oral language and reading, and writing skills. The restructuring plan includes an extensive description of indicators and examples of documentation. For example, in the focus area of technology achievement, goal one is that "all students will increase their knowledge of technological applications." Indicators include such items as "all students will be required to complete, per term, three writings done on a word processor, and demonstrate mastery of a technological application within a career cluster." One strategy for meeting this goal is described as "all teachers will infuse into their courses basic academic and symbolic skills," and one means of documenting the effectiveness of this strategy is to require teachers to generate assignments that will involve problem-solving skills that will be graded and assessed via unit lessons presented in ACT's WorkKeys.

At the time of this writing, a formal evaluation has not been completed regarding the "success" of the block schedule, and whether the goals identified in the school restructuring plan have been met, and to what degree. From information that NCRVE researchers have collected during recent site visits, many teachers welcome the opportunity to receive more training on curriculum development for the block schedule. Indeed, professional development activities continue to be an important component for nurturing the continued improvement of school-to-work initiatives.

OKLAHOMA CITY, OKLAHOMA

OKLAHOMA COMMUNITY COLLEGE
FRANCIS TUTTLE VOCATIONAL TECHNICAL CENTER

In 1991 the Francis Tuttle Center, along with Oklahoma City Community College; the University of Oklahoma; and the Edmond, Western Heights,

Putnam City, and Deer Creek Public Schools, received federal funding to implement a Tech Prep demonstration project. The partners united to form the Consortium to Restructure Education through Academic and Technological Excellence (CREATE). The 1992 plan, developed by the team at the NCRVE Tech Prep Summer Institute, built on this demonstration project. The consortium implemented a 4+2+2 career pathway model, emphasizing four years of high school preparation, plus two years of community college and two years of training at a baccalaureate-granting institution. Students can exit at any point and apply their skills to selected career opportunities. The major career clusters targeted for Tech Prep were health occupations, business, and engineering/trade technology.

Given CREATE's numerous partners, the 1992 summer institute team was composed of representatives from each institution. Following the institute, NCRVE has typically worked with a core number of people, including one administrator, one counselor, and two teachers at Francis Tuttle, one administrator at Putnam High School, and two administrators at the Oklahoma City Community College.

As originally conceived in 1992, the primary components their Tech Prep initiative were curriculum articulation, integrated curriculum and applied academics, career counseling, and partnerships between education and business. A Tech Prep student was defined as someone enrolled in an applied academics course.

EVALUATION DESIGN AND STUDENT OUTCOMES

As a CREATE partner, the Oklahoma City Community College, Office of Program Development, provided an evaluation specialist to the consortium. The evaluator designed a three-year project that included an examination of both implementation processes and student learner outcomes.

The summative evaluation consisted of an examination of four student motivation measures—grade point average, the Iowa Test of Basic Skills (the National Percentile Rank (NPR) scores), absenteeism, and withdrawal rate. In addition, comparison groups of students were identified for the evaluation. Students were grouped into three educational categories—general track, Tech Prep, and other. The purpose for these student groups was to allow a baseline comparison. As the evaluator argued, "it may not be appropriate to compare the Tech Prep student with the "other" students on such outcomes as the math subcomponent of the Iowa Tests (because these students may have more math and are likely to score higher). It is more appropriate to compare Tech Prep student to the "general track" student, however, a comparison between all three will provide some clarity on the outcomes of Tech Prep" (Hellman, 1994, p. 2).

The general track (n=24) was defined as those students enrolled in the minimal courses to graduate. The Tech Prep students (n=72) were defined as those enrolled in applied academics, and subsequently enrolled in an articulated vocational technical program[2]. The "other" group (n=23) was defined as students who have taken courses that exceed the minimal requirements and are typically considered college preparatory sequences (e.g., algebra II, chemistry).

DEMOGRAPHIC CHARACTERISTICS

As presented below, the general track and Tech Prep groups had more male students, and the "other" category was almost equally represented by each gender. Not surprising, given the school districts' location in the primarily white-collar northwest section of Oklahoma City, most students in each group are Caucasian.

TABLE 9-1

OKC DEMOGRAPHIC CHARACTERISTICS

CHARACTERISTICS	STUDENT GROUPS (PERCENT)		
GENDER	GENERAL TRACK	TECH PREP	OTHER
Male	70	62	45
Female	30	38	55
ETHNICITY			
Caucasian	82	68	100
Non-Caucasian	18	32	--

[2]It is important to note that the definition of a Tech Prep student changed over the course of the evaluation as the initiative evolved and goals were refined. For instance, initially, 1,000 secondary students could be identified as "Tech Prep" because the definition was limited to applied academics course enrollment. Eventually, the definition included the qualification of enrollment in an articulated vocational-technical program.

ABSENCE AND DROPOUT RATES

Comparing the tenth grade absence rates for the three groups, "other" students had an average absence rate of 7.8 days. Tech Prep students showed a slightly higher average absence rate of 10.2 days. The general track students had an even higher average absence rate of 16.0 days. Comparing the percent of students dropping out of school, the evaluator reported a similar trend. Only 8.7 percent of "other" students withdrew from school, compared to 9.7 percent of Tech Prep students, and 33.3 percent of general track students. Hellman (1994, p. 3) interpreted these results as "a positive indication to possible benefits of the Tech Prep program implemented by the CREATE consortium."

GRADE POINT AVERAGE TRENDS

The grade point average (GPA) trends from the eighth grade to the twelfth grade were compared for the student groups. The "other" students had a consistently higher GPA, compared to the Tech Prep and general track students. The Tech Prep students have consistently higher GPA's than those in the general track. Of particular interest are the GPA scores at the twelfth grade, where Tech Prep students equal the "other" students, and the general track students end on a downward trend. Although, the Tech Prep scores decrease toward the general track and then increase, in general, the GPA results support the educational reform goals of Tech Prep (Hellman, 1994, p. 4).

TABLE 9-2

GRADE POINT AVERAGE - STUDENT GROUPS

Grade	General Track	Tech Prep	Other
8th	1.8	2.3	2.4
9th	1.7	2.1	2.4
10th	1.8	2.0	2.3
11th	2.0	2.1	2.3
12th	1.8	2.3	2.3
Average	1.8	2.2	2.4

IOWA TEST BATTERY SCORES (ITBS), NATIONAL PERCENTILE RANK (NPR) SCORES

The students National Percentile Rank scores, of the ITBS, were compared across seventh, ninth, and eleventh grades, in the language, reading, math, and science components. The NPR scores range from zero to one hundred. In each grade, the "other" students scored the highest on all four components, which may be influenced by the higher-level course work they completed. For the language and science sub scores, at the seventh grade, Tech Prep students were lower than the general track students. However, by grade eleven the Tech Prep student scores were higher than the general track students. In the math sub score, the Tech Prep students scored higher than the general track students in grades seven and nine, but both groups experienced a decline in scores by grade eleven. For reading, Tech Prep students scored higher than general track students in seventh grade, but declined lower than these students in grades nine and eleven.

The ITBS results shed some light on potential areas for improvement, for example, more attention was warranted in the areas of reading comprehension skills for Tech Prep students. At the same time, Hellman (1994) most appropriately states that the ITBS may not be the best measure of student motivation to learn as he or she advances toward a technical career.

> Without dispute, the ITBS is a valid measure of student achievement, but the scores may not be of value to the students taking the test, and so we should consider giving achievement tests that are germane to the students' chosen technical field. The primary comparison of interest would be, but not limited to, placement in a career of choice. Furthermore, supervisors should be contacted at various times throughout the new employee's first year of employment to provide competence indicators which may lead to that employee's successes (p. 36).

NEXT STEPS—USE OF RESULTS

Perhaps one of the most ambitious uses of the secondary student outcome data was the subsequent pilot study of postsecondary students. During the fall 1994 semester, the evaluator compared a group of Francis Tuttle students who had "banked articulation credits" in three technical programs at Oklahoma City Community College (n=16), to a random sample of students who had not accumulated any articulated credits in these programs (n=11). The selected technical programs were business, computer science, and electronics, and the control group consisted of recent high school graduates enrolled in these programs. In

keeping with the federal education policy changes in 1994, the students were now referred to as school-to-work students (replacing Tech Prep). The majority of students in both groups were male (73 percent control group, 75 percent STW group).

A major area of concern addressed in the evaluation was enrollment in remedial math. In particular, the evaluator argued that "given the initial focus of applied academics (applied math) for the Tech Prep/School-to-Work reform movement, it would be hoped that the STW students would be more similar to the control group in their enrollment in remedial math. "Using the ACT scores and grade point average, as measures of student achievement, the evaluator reported that "considering the ACT math subcomponent scores, the STW student compares relatively equally with the control" (Hellman, 1995, p. 1)[1]. The percent of students who enrolled in remedial math courses was, however, not as equally distributed. As shown in Table 9-3, twenty-one percent of the STW students enrolled in remedial math during the fall 1994 semester, as compared to nine percent of the control group.

TABLE 9-1

COMPARISON MEASURES - STUDENT GROUPS

Comparison Measure	Control Group	STW Group
GPA		
Summer 1994	2.00	2.88
Fall 1994	2.74	2.71
Overall	2.48	2.72
ACT		
Math	18.50	19.08
Remedial Math		
No	91%	21.4%
Gender		
Male	72.7%	75.0%
Female	27.3%	25.0%

[1]The ACT scores and GPA were selected because OKCCC routinely includes this information in student records. For each measure of the criteria, a oneway analysis of variance was calculated to determine if any significant differences existed between the STW and the control group. No significant differences were found, most likely a function of the small sample sizes (Hellman, 1995, p. 2).

Interestingly, despite the differences in ACT scores and enrollment in remedial math, the STW group reported a higher overall GPA. In considering all the data, the evaluator concluded that "the STW student is doing at least as well as the control group, and further examination should provide clarity on the issue of STW student efficacy at the college level" (Hellman, 1995, p. 2).

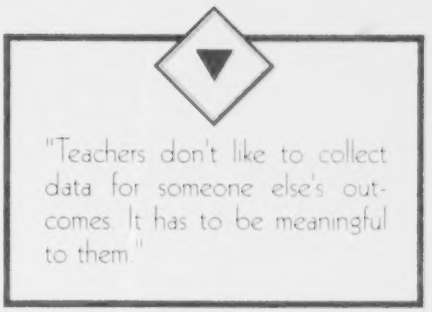
OVERCOMING BARRIERS

These exemplary teams continue to make great strides in collecting student outcome data, at the same time, however, they are confronted with several ongoing dilemmas. For instance, how do you sustain a data collection effort when a third party evaluator leaves? How do you compare students who complete a program in 1993 to those who completed it in 1998 (i.e., when Tech Prep was a fledgling effort versus a more mature initiative)? These dilemmas are not an issue for most of the Network teams because they must grapple with such fundamental tasks as (1) identifying students, (2) selecting outcome measures, (3) determining data collection methods, (4) determining how to use the data, and (5) deciding how to incorporate teachers into the evaluation process. In short, most sites are still working through such questions as: what student are we interested in following, what outcomes do we want to measure, who is going to collect the data, how is it going to be used, how can teachers incorporate the data into the classroom experience, and what is the relevance of the data for teaching and learning?

Some sites have worked through many of these questions and even begun data collection activities, but then a second set of barriers seem to arise. New superintendents or instructional deans are hired, district or state education policies change, or project coordinators relocate to another school. Following these personnel changes, a "new" data collection process is implemented, and "old" data or outcome measures are deemed irrelevant or wrong. For instance, some sites are facing the complete reconstitution of their school, and student records are inaccurate or not available. Some schools have embarked on a whole school reform initiative. Hence, there is no target student because everyone is subject to the same "treatment," and the comparison of student performance becomes a more difficult problem, not easily solved by over worked staff who are not experts in evaluation methodologies. This

Some schools have embarked on a whole school reform initiative. Hence, there is no target student because everyone is subject to the same "treatment," and the comparison of student performance becomes a more difficult problem.

latter problem is further compounded by the use of a different definition of target student by the community college that is trying to follow individuals who have transitioned from a local high school. Some Network members report that secondary students are a transient population, and even though they can be identified in high school they can't be followed after graduation. As a result, valuable information for program improvement, such as evidence of success in postsecondary courses or in career-related job placements, is not available.



Perhaps one of the most distressing barriers is the rejection of data that is collected. The results that were collected are not the outcomes the community at large wants to hear or read about. For instance, entrance into and completion of a four-year university degree is still the ultimate goal for many secondary school educators, parents, guidance counselors, and students. However, when available data (from an Urban Network team) indicates that 4.5 years after graduation only two percent of a high school's 250 graduates have completed a baccalaureate degree, the data are typically ignored rather than used as an impetus to talk about school improvement. Many teams are also confronted with resistant attitudes toward accepting a "careers" approach to secondary education. There is a gap in understanding about the economic realities of a community (the skills employers need) and the available education and training opportunities (local schools and colleges can provide students with the knowledge and skills needed to fill those career positions).

Although the barriers to using outcome data for program improvement purposes seem formidable, there continues to be progress and dialogue on how to overcome obstacles. For instance, a representative from the Milwaukee site commented that "we need to use performance assessments that test the skills we purport to want to know about. If solving a geometric proof is the skill you want, then test for that, but if you want a student to apply some geometric concept, then test for that applied knowledge. In addition, the Somerville, Massachusetts site, found a way to empower teachers so they would use outcome data—they select the outcomes to be measured. "Teachers don't like to collect data for someone else's outcomes. It has to be meaningful to them," commented a district-level administrator.

Indeed, a major problem is the lack of teacher engagement in the evaluation process and the related application of results to an ongoing program improvement process. Interestingly, the research literature is growing with articles on school restructuring efforts, teacher-directed reforms, and outside partners (such as the role played by NCRVE) who are trying to provide assistance. For

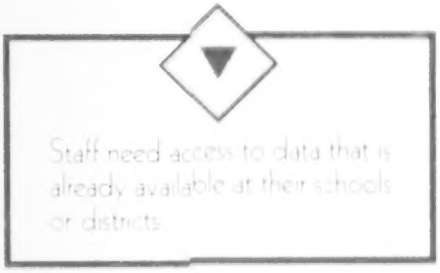
instance, Bascia (1996) provides an excellent discussion of how the implementation of school reforms is typically hampered by the larger organizational and political contexts in which they are situated. She states quite frankly that:

> The success and speed with which school programs undergo comprehensive change depends in significant part on school staffs' relative legitimacy and power within their partnership networks...The interconnectedness and multilevel, multisector nature of restructuring projects can work to impede school staffs' efforts to significantly reconceptualize their education programs, particularly at [urban] schools where staffs are contending with the most critical educational problems (p. 179).

In agreement with Bascia (1996), Kanpol and Yeo (1995), Noguera (1996), Weinstein, Madison, and Kuklinski (1995), and Talbert and McLaughlin (1994) report that high school departments, schools, and districts play a role in supporting or undermining teacher professionalism. In short, research indicates that teachers will engage in such activities as evaluation studies if they are part of an active learning community of teachers. Furthermore, what is needed in the urban environment is an approach that integrates efforts to promote urban school reform with broader strategies aimed at revitalizing urban areas. More teachers will engage in efforts to collect student performance outcome data if they work in an environment characterized as a supportive learning community—for both themselves and their students.

LESSONS LEARNED

A detailed discussion of outcome data was presented from our Brooklyn, Omaha, and Oklahoma City teams. In closing, however, it is important to acknowledge the many sources of data that are available for each team. For instance, consider the guidance counseling component. If the goal of a team is to design and implement a comprehensive career information system for all students, then this can be assessed by analyzing how the changes in guidance activities have affected students. As presented in other chapters of this publication, team members can use several bodies of evidence for evaluation purposes, including integrated course materials, plans for work-based learning experiences, individual career plans, and articulation agreements. In some cases, however, the most powerful outcome measures are those of student progress and achievement.



In terms of how many Urban Schools Network teams can provide data on student outcomes, the proportion is representative of the nation as a whole. As mentioned in Chapter Eight, according to results from the federally funded, national study of Tech Prep, "in 1993 only two percent of consortia were actually testing a computerized student database" (Silverberg and Hershey, 1994, p. 30). In agreement, Bragg, Puckett, Reger, Thomas, Ortman, and Dornsife (1997) report that, based upon a nationwide random sample of Tech Prep consortia (n=855), conducted during two time periods, in 1992–93 only eight percent of consortia reported "initial implementation" of an evaluation component, and in 1994–95, only twenty-eight percent reported the "initial implementation" of an evaluation component. Initial implementation was defined as what "occurs when plans and products of the development stage begin to be carried out" (Bragg et al., 1977, p. 49).

What can be done by NCRVE or other outside organizations helping schools change to increase the number of sites that are engaged in evaluation activities? As stated during July 1997 focus groups, sites continue to need technical assistance in translating goals into outcome measures, identifying student comparison groups, and learning techniques on how to collect student followup data after graduation. Most importantly, Network site staff need access to data that is already available at their schools or districts. In some cases, this access may be gained by identifying an appropriate administrator or by working with a principal who receives information and reports on a regular basis. This last area targeted for technical assistance highlights the political nature of conducting evaluation and a barrier mentioned in this chapter—that the use of available data may be rejected because it does not support a particular belief system or contradicts a particular goal. There is no single solution to the problems of access, interpretation, and use of data, but it is encouraging that Urban Schools Network member institutions have provided strategies to surmount these obstacles that are common across so many school settings and a feature of implementing any major education reform initiative.

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APPENDIX

AGREEMENT FOR PROGRAM IMPROVEMENT BETWEEN THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION (NCRVE) AND SCHOOLS AND COLLEGES AFFILIATED WITH THE NCRVE NETWORK

The school or college agrees to:

1. Offer at least one career-related learning sequence in which every participating student has the opportunity to accomplish both of the following objectives:
   a) Achieve high academic standards and satisfy course requirements for admission to postsecondary education, including four-year college or university; and
   b) Gain strong understanding of and experience in "all aspects of an industry" to prepare for rewarding employment and potential career advancement.
2. Try to include in each career-related learning sequence a range of students whose demographic characteristics and performance levels reflect the composition of the whole school or college, and provide the services needed to enable all participating students to achieve the objectives in 1.
3. Recruit students into each career-related learning sequence on the basis of students' own choice.
4. Determine the effectiveness of the following practices in each career-related learning sequence:
   a) Curriculum that integrates academic and vocational-technical subjects through the study of a broad industry or career major;
   b) Student-centered instructional methods that link classroom studies to work-based learning; and

c) Explicit pathways that lead from high school to postsecondary education.

5. Involve students, parents, faculty, and employers in decisions that affect the program.

6. Participate in periodic self-assessment activities to document the progress made, the type of difficulties encountered, and the course of future actions.

7. Share information with NCRVE at least once a year about the extent of progress in implementing the practices in (2) through (5) and achieving the student outcomes in (1), including results of activity-based assessments of student learning.

NCRVE is committed to providing assistance to Network schools in their efforts to implement the Agreement for Program Improvement.

NCRVE agrees to provide:

1. COMMUNICATION:

   Talk with teams on a monthly basis to assess needs and solicit input on Network events. Maintain and monitor an electronic network with the participating teams. Provide updated information on activities, research, funding sources, successful programs, and opportunities for professional development. Promote activities of the Urban Schools Network locally and nationally and report progress made at the individual sites. Help teams market their programs to the community and the media.

2. PROFESSIONAL DEVELOPMENT:

   Conduct regional meetings or summer institutes to exchange ideas across team sites, and enable teams to further progress in the implementation of their plans.

3. TECHNICAL ASSISTANCE:

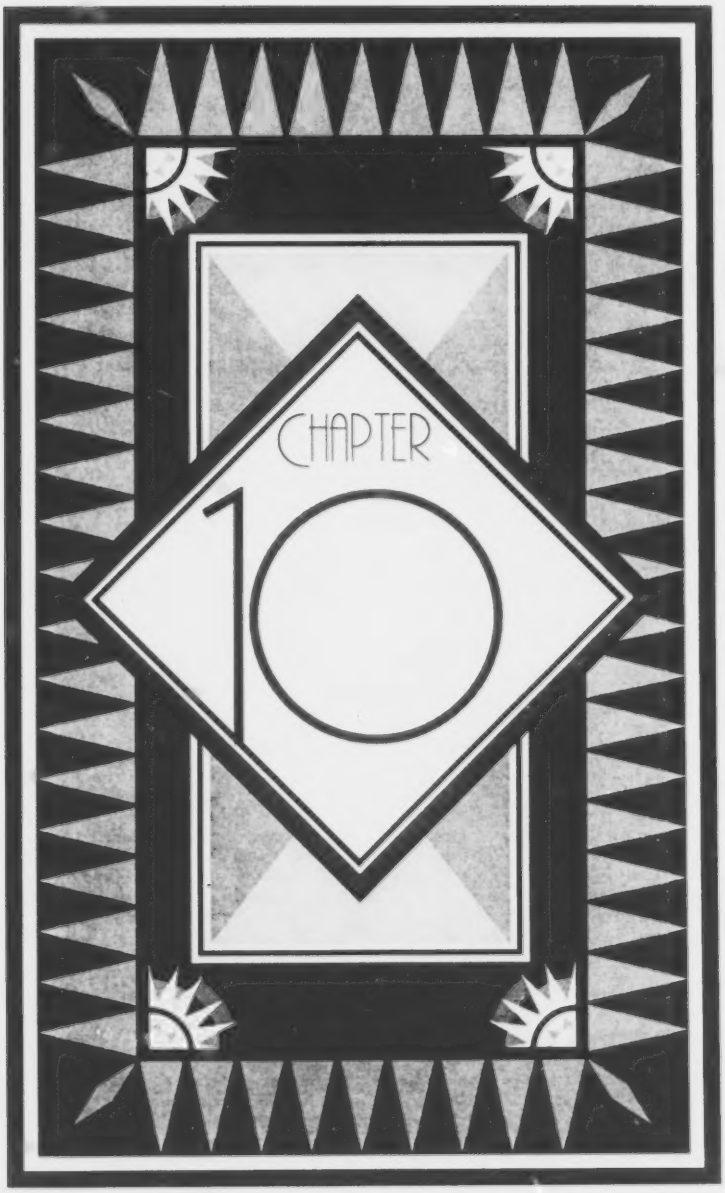
   Match sites with individuals (field consultants, NCRVE staff, and Faculty Fellows) and resources to help teams in the process of planning, implementation, and problem solving. Provide sites with access to the program development guide: Getting to Work. Work within the district and region to develop ongoing support. Assist teams in the procurement of funds by providing letters of support, information pertaining to sources of funding, and grant preparation help.

4. FEEDBACK:

Provide opportunities for assessment of progress, collection, and documentation of improvement. Offer suggestions, problem solving, and troubleshooting. Synthesize evidence of progress across network sites. Showcase the accomplishments of Network sites to community, state, and national audiences.

5. FUNDING:

Actively seek additional sources of funding for the Urban Schools Network. Additional support will be utilized to provide on-site technical assistance to the network schools, and to assist team members in attending NCRVE-sponsored meetings and other professional development activities.


CHAPTER
10

I am a fairly visionary person and I'm always trying new things. I'm never satisfied with what I do now; it's always a vision in mind. And I thought to myself, you know, the principal is not giving us a lot of direction. So when we started our block scheduling I thought, what am I going to do? Now, I am so in favor of block scheduling you wouldn't believe it. I realized that [he] gave us the opportunity to develop programs the way that we saw fit. He didn't delve into something and say 'this is the way you are going to do it.' It has been a struggle, but in the long run I think he was very wise in doing it that way. Because it is OUR program.

— Teacher, Urban Schools Network

When all is said and done, after five years of hard steady work as the Urban Schools Network, what have we learned about how schools transform themselves? What do we know about how schools evolve to the point where they can articulate stable progress—or forward movement—or can describe their schools as new and different places for staff and students? A few core ideas about what

it takes to transform schoolhouses into places that bring together the worlds of academic and vocational teachers, the school and the community, and secondary and postsecondary institutions, clearly drift toward the top of the list.

From the perspective of the National Center for Research in Vocational Education (NCRVE), we think it's fundamentally about *learning*. While school reform is traditionally associated with terms such as *implementation* and *buy-in* to the ideas of a few key planners, our work as a network has left us thinking about reform in a different way:

> *Buy-in* and *implementation* imply adherence to another's idea, whereas *learning* and *creating*, and ultimately ownership (or "our program" as the teacher quoted above said), imply the whole staff learning together to transform their school into a different, and better place.

Thus, while the Network participants were initially full of questions about securing buy-in to a vision created by few, in the final analysis, the strategies utilized to make progress were about revisioning, and had more to do with learning and owning than implementing and buy-in.

OUR IDEA

We began the Urban Schools Network back in 1992. We asked school teams to join NCRVE in thinking about the implementation of Tech Prep programs and integrated curriculum. Essentially their task was to think about how to do two things simultaneously:

- to run their schools, and
- to try and change them drastically.

NCRVE designed its strategy around these two goals. NCRVE's task was to figure out how to help schools best learn and implement new strategies embodied in federal policy. The core ideas behind the Carl D. Perkins Vocational Education Act of 1990 (Perkins II) first, later followed by the federal School-to-Work Opportunities Act (1994), are namely the connections between the worlds of academic and vocational education instruction, schools and communities, and high schools and postsecondary institutions. At the nexus of these connections is an engaging and rigorous curriculum—*engaging* to help students understand the relevance and meaning of schooling and knowledge, and *rigorous* to ensure students reach high standards that will best prepare them for future destinations. This vision also demands intense collaboration among teachers, business, and community in new ways to bring these ideas to life.

Given the nature of this vision and the task facing schools—to keep their schools open and running while simultaneously redesigning them—our strategy was simple:

- Bring school teams together at residential off-site summer institutes in Berkeley to forge a vision of integration and tech prep;
- Pair school teams with Urban Network Fellows (expert practitioners serving as consultants) who could both facilitate the team planning process and offer technical assistance; and
- Provide time for school teams to learn from one another.

We recommended that schools send teams to Berkeley that broadly reflected their institutions and thus were best positioned to create a vision for their schools and institutions. These teams were comprised of academic and vocational teachers from high schools and postsecondary institutions, business partners, administrators, counselors, and state representatives. The key activity and product of the summer institutes was a school plan that teams forged together. Initially, the summer institutes were the key strategy developed by NCRVE to assist schools. After the summer institutes, it became apparent that the school teams wanted ways to reconvene in order to learn from one another. NCRVE agreed to bring school teams back together to learn from each other over the next several years. Hence our strategy evolved into three parts: summer institutes and team plan, followup assistance, and network gatherings.

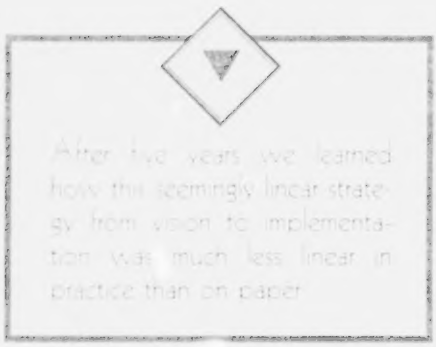
Our strategy was built on a fundamental assumption about how schools change. As Beckhard and Pritchard (1992) describe, our strategy was one of vision-driven change, where we assumed schools change by:

- creating and setting the vision;
- communicating the vision;
- building commitment to the vision; and
- organizing people and what they do so that they are aligned to the vision.

After five years as the Urban Schools Network we learned how this seemingly linear strategy from vision to implementation was much less linear in practice than on paper. The teams' experiences throughout the years tell us more about *learning* than *implementing* a vision. Conceptualizing the challenge of reform as learning casts a very different image of the reform process—one that is cyclical and chaotic rather than linear or step by step. Given the nature

of the vision for school-to-work, the metaphor of learning together rather than implementing a vision is quite apropos.

Here is why: while Tech Prep, integrated curriculum, and school-to-work are described as a series of components (such as academy-type structures or connecting school and work-based activities) they represent, more importantly, a set of *ideas*. As we learned with the network sites, it is difficult to come to agreement, or design a school vision around ideas alone. Ideas are abstract and seem to be best understood through experience or concrete example. In essence, forming a common vision early on at the summer institute was premature. School teams needed time to learn first, and engage in a visioning process later. Integration, Tech Prep and school-to-work are much more than models to be simply implemented as a step-by-step recipe. Network sites were faced with needing to:


After five years, we learned how this seemingly linear strategy from vision to implementation was much less linear in practice than on paper.

- Learn to work across historical dividing lines, or disciplines, to collaboratively envision a new school place that joined learning and doing, head and hand.
- Learn new, complex ideas about curriculum and instruction and implement them within and across multiple institutions involving various players from different vantage points.
- Learn new strategies while working within existing systems bounded and defined by history and tradition, politics and incentives, roles and current activity.
- Learn and try out complex ideas like school-to-work amidst the evolving urban context where instability is the norm and an unwavering dynamic of presentism and reaction leave little time for *thinking*—let alone acquiring, trying out, and refining new skills or new conceptions of schooling.

Thus, our chief lessons about the Network are about how schools learn about and become new places for students and adults while they simultaneously manage a full-time schedule running their schools. While the previous chapters of this book portray Network sites' activities within particular components of school-to-work programs from integrated curriculum, work-based learning, whole school change, professional development, alternative scheduling, evaluation, and postsecondary partners to guidance and counseling, this chapter synthesizes our core lessons about school change learned as outsiders working

with teams. These lessons are not necessarily specific to school-to-work, Tech Prep, or integration; instead they are broad lessons about how schools change, applicable to those working from within the school, and those in organizations helping from the outside. In this final chapter, we reflect on what we learned about schools' learning processes relative to the three areas of our strategy (which are common features of many school reform strategies): planning, teaming, and providing opportunities to learn.

IF IT'S ABOUT LEARNING, WHAT DID WE LEARN?

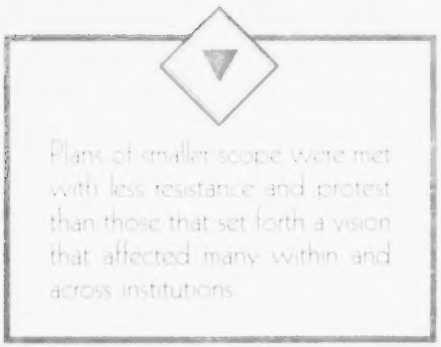
LESSON #1: VISIONS, PLANS, AND REVISIONS

When schools first came to the 1992 summer institutes, we asked them to create a plan—a written vision—for their implementation work back at home. Within this plan we articulated several necessary components for implementing what was initially called integration or Tech Prep, and in later years of the Network, school-to-work. These components included integrated curriculum, articulation agreements, staff development plans, involvement with business and industry, Tech Prep recruitment and retention strategies, guidance and counseling, and evaluation.

Within this framework, the scope of the Urban Schools Network sites' work varied from small pilot efforts within vocational or comprehensive high schools, to whole school efforts, to multi-institutional consortia. What happened to the scope of these visions over the years also varied. Some Network sites purposely stayed focused on small efforts, while others moved from initial pilots to whole school efforts. At the consortia level, the Dona Ana Tech Prep Consortium in Las Cruces, New Mexico, and Oklahoma City's Consortium to Restructure Education through Academic and Technological Excellence (CREATE) moved from a focus on system-building issues consortia wide to multiple whole school change efforts.

Beyond the scope of the original plan, what is most significant is what happened with the use of a vision or plan once teams headed home from the Berkeley summer institutes. Teams' plans or visions were met with very different reactions across the network sites. In many ways the reaction was linked to the scope of the vision. Predictably, plans of smaller scope were met with less resistance and protest than those that set forth a vision that affected many within and across institutions. Because there were instances where teams were

met with resistance, our most fundamental assumption about school change—that it is vision-driven—was challenged. Schools were resitant to the fact that a small group carried out the role of "creating and setting the vision" that impacted the entire school. One school, however, was able to capitalize on the energy generated from resistance and funnel it in to productive use and begin a more organic schoolwide effort.


Plans of smaller scope were met with less resistance and protest than those that set forth a vision that affected many within and across institutions.

In addition, most plans went through some sort of adjustment or revisioning process throughout the years due to turnover in the team membership, policy changes at the school or district level, or the introduction of new initiatives (for more about this topic see Chapter Five on Whole School Change). For a handful of teams, the plan created in 1992 still serves as an important touchstone to assess progress toward the vision. For most, however, the original vision remains on paper only, and a new one continues to evolve as team members change, face new contextual constraints and opportunities, and learn from their earlier implementation efforts.

The written school plan, as originally designed by NCRVE, has had limited power as a visioning tool for implementation. This is not to suggest that an initial plan or vision is insignificant. In part, a plan of action is only as good as the process from which it was conceived. Many of the Network sites preferred a much more inclusive process than the ones used in summer institutes. In fact "buy-in" to a vision implies a vision exists that needs to be discovered and adhered to by all.

Furthermore, it seems that the more complicated the vision, the more difficult it is to define without a lot of discussion and experiments. The vision embodied in the Perkins Act and School-to-Work legislation confronts assumptions and beliefs about schooling, beliefs and assumptions that play out in program design, structure and content. For example:

- Is school-to-work for all students? Who is school-to-work for? What "problem" is it designed to solve? Although high schools have been charged with many purposes, the goal of preparing students for their future role in the economy has been loosely embraced as important for all students. How do we serve all students— with identical offerings for all, or programmatic differentiation to meet unique needs?

- How do we collaborate across disciplines? How is integration defined? How do we retain the rigor and integrity of the disciplines? How are they blended and to what extent? Are we integrating existing subject matter, or is this about a new type of knowledge, for example SCANS skills? What is it essential for students to know, and how much can you let go in the curriculum?

While the plans school teams developed at the 1992 institutes proved a less powerful tool "to build commitment to change, and to organize people in line with the vision" than hoped for, many sites learned from this experience and planned for related school reform initiatives differently. To illuminate an alternative planning and visioning process, consider, for example, the structural reconfiguration to block scheduling at several network sites. This change was necessary at several Network sites to allow time for work-based learning, integrated curriculum, and teacher planning time. (For more detail, see Chapter Four). For this particular transformation, sites made time for staff to study *together* the range of possibilities for block scheduling. Teachers, representing their colleagues, were sent to other schools to learn about the possibilities— from different scheduling configurations to the challenges and other important tricks of the trade. As ambassadors from their schools, they arrived seeking examples, suggestions, and answers to their colleagues' questions. Upon returning home they were able to share their knowledge and work with the staff in thinking through the benefits and tradeoffs of block scheduling, and the possible alternatives best suited to their school context.

This planning and collective visioning process was met with great enthusiasm across all sites that attempted block scheduling. Quite simply, sites made time in the school day to learn together. And they took their time, too. In all cases, sites studied block scheduling for a full year or more before making a decision. And in one case, a site kept the focus on this single initiative well into the second year when implementation began. In this way the faculty could focus in depth on only one issue (block scheduling) and have time to troubleshoot as their implementation work deepened.

This particular example of a more effective planning process—one that focuses on staff learning together—demonstrates the power of a plan when the planning process is better suited to the complexity of the reform. It also demonstrates the power of an approach to change (planning lead by a representative set of ambassadors) when it is better matched to the culture of the institution. What we learned from the small team-based planning process at the summer institutes, versus what the sites learned from block scheduling experiments, is that it makes more sense to learn together first, rather than plan and set firm visions with little information. Imagine the resistance had small groups of staff

made decisions about block scheduling without thorough research and without discussion about the tradeoffs with all who would be affected.

This is not to suggest that creating a plan and initial vision is a wasted exercise. For most sites it provided a framework from which to focus a conversation about reform. A plan is not a static document. It is evolutionary; it undergoes revision as lessons are learned or when new legislation nudges schools to think about their vision in different ways. For example, schools formerly focusing on the "middle majority" of students in Tech Prep programs, were nudged by the school-to-work legislation to think about including all students in school-to-work programs. Louis and Miles (1990) say it best.

> The evolutionary perspective [about change] rests on the assumption that the environment both inside and outside organizations is often chaotic. No specific plan can last for very long, because it will either become outmoded due to changing external pressures or because disagreement over priorities arises within the organization. Yet, there is no reason to assume that the best response is to plan passively, relying on incremental decisions. Instead, the organization can cycle back and forth between efforts to gain normative consensus about what it may become, to plan strategies for getting there, and to carry out decentralized incremental experimentation that harnesses the creativity of all members to the change effort. . . . Strategy is viewed as a flexible tool, rather than a semi-permanent expansion of the mission (p.193).

Due to the complexity of the ideas and the depth of change which the ideas of school-to-work (and many other current reforms) represent, schools can get only so far in the vision process without a lot of research and experience. Furthermore, it matters a great deal who is seated at the table when a vision is discussed. And if the staff approach to change focuses on learning together versus encouraging buy-in from colleagues—is the vision "owned" and determined by a select few, or does the staff know that it has permission to figure it out together?

LESSON #2: IT TAKES TEAMWORK

A second part of NCRVE's strategy to help Network sites simultaneously run and redesign their schools (and a strategy of many other reform initiatives), was the use of teams representing school sites to conceive of and implement the plan. After five years' experience with the team strategy, Urban Schools Network sites gathered many insights about the power of teams to change schools and the implications for future work.

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First, from the vantage point of Urban Schools Network sites, teams were the "right" strategy for this particular reform. Teams provided a structure for the different constituents involved to become acquainted, forge a relationship, and get down to the business of working together. A related point is that in an education system filled with hierarchies and divisions ingrained by tradition, teams provided an important vehicle for working together despite these existing divisions and temporarily created an equal playing field.

However, coming together to work as a team in the construction of such a complicated vision was a daunting task. Precisely because team members represented different constituents and interest groups, the groundwork was laid for many challenges. Urban Schools Network sites shared many reflections in the past five years about the challenge of simply understanding each other's perspective in working as a united front toward a common goal. A recurring difficulty common among network sites was the battle between academic and vocational teachers. Because academic and vocational education are separated worlds on many campuses, and teachers from these worlds are collaborating for the first time, this surfaced a gulf in approaches to schooling and the words and language used to describe school visions. This is not surprising given how separate vocational and academic education have been from one another. As one team member said, "it took all of our years with the Network just to get comfortable and understand what 'they' do." Or as another teacher said, "it took forever just to agree on how we were using particular words. Imagine that, a ten day institute and all we agreed to were definitions!"

To be sure, word choice and language were symptomatic of a deeper issue. One team member said that the gulf between academic and vocational teachers was reminiscent of racial segregation. Despite the large gulf that separated teachers, however, he was confident that if academic and vocational teachers were forced to work and learn together they would eventually grow comfortable with one another. Beyond pointing out the lack of a common language, teaming also uncovered existing hierarchies, and revealed the priorities embedded within the current system. For example, the process of defining and constructing integrated curriculum raised a number of lurking questions, such as which is the "core" knowledge? Who needs to integrate with whom? What is the goal for students—the demonstration of core knowledge and/or the demonstration of competencies necessary for the workplace?

As a consequence, teaming created unavoidable conflict (see Chapter Two on the Integration of Academic and Vocational Education). Teams needed time to sort through these issues and language differences, as well as the questions about purpose and appropriate policy. Another equally difficult lesson learned about the strategy of using teams to spearhead the vision and planning process focused on the composition of the teams themselves. We suggested that each team represent the various parties of interest, from teachers to administrators, postsecondary instructors, and counselors. In our own understanding, we thought this was the "right" team given the task they were charged with. Through the years the teams themselves have learned a bit about what the "right" team means to them.

When teams were formed, they brought together members that matched the vision of Tech Prep or integrated curriculum. While all teams were represented by academic and vocational teachers and instructors, administrators, counselors, business partners, and district and state personnel, team composition did vary depending upon the goal. For example, teams with visions of developing a larger consortium to serve multiple institutions and districts had personnel representing potential consortium players. Teams who began with pilot efforts in a single school or department had members more closely representing those who would participate in the actual implementation of the effort. But some teams were composed of a much more random mix of members.

Across the Network sites, teams were and continue to be a powerful learning and change strategy.

These examples of varied team composition provide us with the opportunity to think about the purpose and potential of the team strategy. In a vision-driven change strategy, or vision-to-implementation model, the purpose of the team is to write the plan and lead the school. But as we learned, this strategy and the assumptions that this strategy is built upon—that a few can create a vision for many—can be problematic. In addition, this strategy can be perceived as top-down, and therefore suspect. As teams grappled with the purpose of the team strategy and reflected about their five years with the Urban Schools Network, some questions remain about how the most effective team is composed:

- Should teams be comprised of the "movers" of the building, who may or may not represent a cross-section of the school population, and who are positioned as ambassadors to help lead the school through a consentually developed change process? If this is true, when can the mover team be selected?

- Or, does the entire staff first need to reach consensus on the direction of the school and then pick a team (comprised of the movers) to lead the effort?

We have learned that the answer depends on how sites understand and envision how they can change—through vision and implementation or learning and creating together. Across the Network sites, teams were and continue to be a powerful learning and change strategy. The power of teams stems from their purpose as determined by sites. Sites need to decide whether the purpose of the team is to lead or to tell—to create opportunity to learn together or to communicate a strong vision. For the sake of argument these two types are presented here as a dichotomy, but the truth is surely somewhere in the middle. Schools across the Network (and quite possibly the nation) unanimously agree that to create meaningful change, strong, sustained leadership is a must. Usually strong leadership is expressed as the need for a strong principal. But according to the Network sites, team-based leadership is also vital. It just needs to be the "right" team.

Even when it is the "right" team, a challenge that emerged across several sites is team turnover and the continuous problem of finding time to bring new members up to speed. Interestingly, during focus group conversations with Network sites after five years of work, many sites articulated a positive angle on the dilemma of "unstable" team membership. In NCRVE's vision of the team strategy, team stability was vital. From the perspective of some Network sites however, instability was less problematic. Metaphorically speaking, if team members represented seeds to be planted, then turnover represented a sprinkling of seeds throughout the system. In this way, seeds sprouted all over the city would ultimately yield more than if the seeds remained concentrated in a particular garden.

If team members represented seeds to be planted, then turnover represented a sprinkling of seeds throughout the system.

LESSON #3: LEARNING TOGETHER

Ultimately what the teams' experiences showed us at NCRVE is that relying on the power of a plan created by few to help schools move forward is problematic. Due to the differences among us—the different roles and vantage points we represent in this collaboration—our work together is about forging common cause and not necessarily securing buy-in to a vision defined by a few. To focus on buy-in draws attention to our differences. Creating a vision together makes room for new ground and understanding as we invent a new school world defined by collaboration. For a vision to become shared it needs to emerge from

interaction together. As Fullan (1993) has suggested—collaborative visions come later in the change process as it takes time to merge personal visions with shared visions. Or as Senge (1990) suggests:

> Most visions are one person's (or one group's) vision imposed on an organization. Such visions at best, command compliance——not commitment. A shared vision is a vision that many people are truly committed to, because it reflects their own personal vision (p. 211).

Moreover, ownership of a shared vision cannot be achieved in advance of learning something new. Given this, how does a school get started in creating a shared vision around which school staffs can create ownership and commitment? How did Urban Schools Network sites provide opportunities for their staffs to learn together and forge meaning? Through Network activities, such as regional meetings and summer institutes, NCRVE provided opportunities to learn from one another, within and across sites. Yet we underestimated the multifaceted learning needs of these sites. As the sites taught us, with a (school-to-work) vision of this complexity, opportunities for learning together on many levels are vital. For example, sites needed time to learn how to work together as teams; how to integrate curriculum; how to problem solve around key issues, such as creating school-to-work opportunities for all students; and how to work with business partners to develop work-based learning experiences. A look at the many ways sites say they needed to learn, both together and from each other across the Network, and the many forums in which this occurred, provides significant insight into the learning demands schools face in the creation of school-to-work systems. Within this context, three key recurring themes surfaced from the Network—the need for learning by creating shared experiences, the need for both pressure and support, and the need to create time for meaningful adult learning.

To focus on buy-in draws attention to our differences. Creating a vision together makes room for new ground and understanding as we invent a new school world defined by collaboration.

NCRVE's strategy focused on team building as well as on providing information about models of integrated curriculum, articulation agreements, and evaluation design. According to the teams, while these strategies of team building and technical assistance were helpful to their efforts, they were not enough. The Network sites were clear that they needed information and assistance (these needs are illuminated in Chapter Six on Professional Development). They also needed the opportunity to learn new ideas, time to discuss and create the vision,

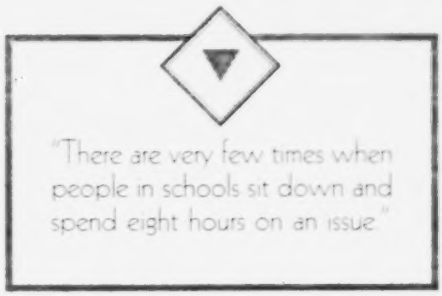
and time to problem solve about thorny implementation problems. Additionally, they needed support and pressure in their endeavors. To the sites, *support* meant knowing who to turn to for advice and validation, and *pressure* meant knowing they were accountable for their efforts and progress. But not just *any* opportunity would suffice. Sites were clear that opportunities needed to be both personally meaningful and coherent with their overall efforts. Here is a sampling of strategies that enabled sites to grow a vision through new experiences and to talk with each other together, with both the pressure and support of an outsider, NCRVE.

SHARED EXPERIENCES: GROWING A VISION, EXPANDING OUR THINKING

Network site staffs experienced learning together as a way to build shared knowledge. Most sites spoke about shared experience as opportunities to expand their thinking about what was possible for their schools. A popular way for staff to learn new things through experience was the teacher internship or industry site visit. In one example from Chapter Six on professional development, teachers, administrators, and counselors toured an auto manufacturing plant in Detroit. They were surprised together that their preconceived images of the plant were way off. They experienced the technology of the highly automated plant together, and took employment tests. It was an eye-opening visit for all, and provided site staff with a basis of common understanding from which to rethink their school programs.

Site visits to other schools were also popular (as described previously in this chapter in an illustration of how schools researched block scheduling). Much less logistically complicated, but equally powerful was the idea of teachers visiting other classrooms in their building to gain an understanding of the content and curriculum for each others' subject matter. This way teachers learned from each other firsthand the possible linkages for integrating the curriculum. But this strategy had important implications beyond learning about each others' subject matter. What this strategy also provided was an opportunity to increase collegiality within the school and to build a sense of trust and confidence—two conditions that Saphier and King (1985) have argued are important cultural norms that affect a school's ability to improve itself. A related strategy that built both collegiality and trust—key ingredients for collaborative strategies like integrated curriculum—was to learn something together, such as how to use the Internet. What is key about this activity is that it was neutral. Trust, collegiality, and new knowledge were built from the midpoint of the different perspectives—academic and vocational—creating an important team-building opportunity and precursor to writing curriculum together.

A second important, albeit less frequent, way sites created shared meaning was through NCRVE events. The structure of the NCRVE institutes—working as teams facilitated by an NCRVE fellow, with plenty of time for cross-team networking—proved to be a powerful combination for learning. The institutes and regional meetings provided the opportunity to acquire knowledge and time to share thoughts and problems. As one team member said, "part of the institute was very applied, very interactive, and very integrated. You sit down and write things, and see whether it holds water." In some ways, the institute served as a mock trial for ideas before taking them home. The cross-team interaction that took place at the institutes served a similar purpose to site visits to other schools, allowing teams the opportunity to learn about the benefits, tradeoffs, and realities of a particular strategy.



In addition, Network members spoke persuasively about the value of time allotted every year, in retreat fashion at institutes and regional meetings, to revisit ideas and plans, to assess progress and plan again. As one team member remarked, "there are very few times where people in schools sit down and spend eight hours on an issue." Faculty also spoke convincingly about the reenergizing nature of the institutes because they were surrounded by like-minded colleagues without the pressures and reminders of their daily work. In short, what the network provided was a vehicle to learn new ideas from one another; take a break from the daily grind of school to think, learn new things, and problem solve; and provide validity about their reform ideas.

PAUSING FOR PROGRESS

NCRVE staff and fellows also played an important role in nudging schools to keep going despite all the inevitable set backs. In this way NCRVE served a dual role—provider of both *pressure*, in the form of accountability, and *support*, in the form of institutes and information. The *pressure* came in the form of site visits to provide assistance and resources, as well as to assess progress. Network sites spoke frequently about the power of an outside influence, (in this case, NCRVE). At a more basic level, sites told us that, "sometimes NCRVE was the only constant in a sea of turnover." In this way NCRVE provided an ounce of motivation to keep going when circumstances provided every reason not to. On a deeper level, NCRVE's presence provided a sense of accountability missing in sites' daily work. Sites stated quite simply that they "wanted something to show" when NCRVE arrived on campus. The site visit from NCRVE itself provided a reason to keep going. And NCRVE's presence also provided an

important source of support and legitimacy to colleagues reticent to understand and embrace an evolving vision of their school. In this way, NCRVE was a validating voice to the thoughts and ideas of forward-thinking staff members as they faced nay-saying colleagues who thought little of their ideas. And finally, given the usual dynamic in schools—political and vulnerable to a short-cycled swinging pendulum of reform efforts—a national organization provided a presence and face for integration, Tech Prep, and school-to-work, grounding these ideas in concrete evidence and national recognition.

TIME TO TALK

Back in the daily routine of keeping school, as important as having new experiences as a team and as a staff, is making time to talk as a staff. Network sites engaged in running their schools and simultaneously changing them fundamentally, had several clever suggestions about this core dilemma—how to find more time in the day to think, learn, and network as colleagues. One such strategy was to hire a reform coordinator to help keep up the momentum of reform. On the other hand, some teams commented that a full-time coordinator can sometimes be problematic. It seems that within teacher culture, a reform coordinator who is no longer teaching may have less credibility. For this reason some sites suggested that reform coordinators need to have a split assignment between teaching and coordinating.

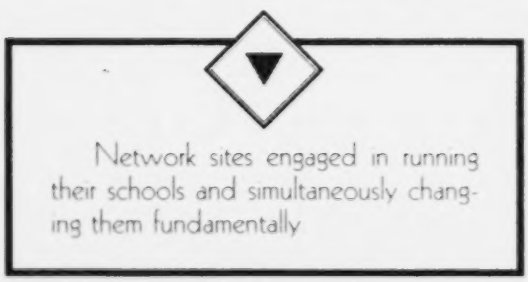
In all cases, with or without coordinators, sites stated that it is important to keep the reform discussion in the forefront of people's minds. Many also suggested using teacher prep periods as a way to keep the schoolwide conversation going. For example, when Bryan High School in Omaha, Nebraska, made the transition to a new block schedule, they held prep period meetings called "block parties" throughout the year to help staff work together and address implementation challenges during the transition to a new schedule.

Another helpful approach comes from Lansdowne High School in Baltimore County, Maryland. As mentioned earlier, in preparation for changing to a block schedule, and during the first year of implementation, they focused their energies on just this innovation. This way during teacher prep time (which in the block schedule model actually provides teachers with longer chunks of time to prepare their lessons), teachers could devote all of this time to learning how to teach with extended periods of time. By focusing their energies on one innovation at a time, they felt they were able to make the change successfully.

LESSON #4: CONSIDER THE ENTIRE SYSTEM

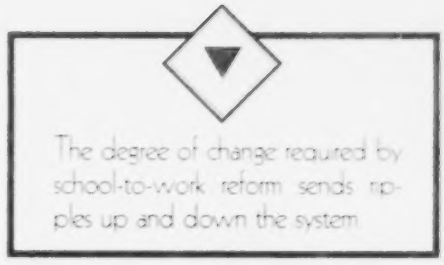
A key finding for NCRVE about working with schools engaged in two overwhelming simultaneous endeavors—running a school and significantly restructuring at the same time—is that the degree of change required by school-to-work reform sends ripples up and down the system. And it isn't possible to work on one piece of the system at a time, fitting one piece to another, like putting together a jigsaw puzzle. For example, even when a school begins its school-to-work efforts with integrated curriculum or work-based learning, (as described in Chapters Two and Three) these take enormous effort and new understanding, and it isn't long before other aspects of the school system are pinpointed for change. Both integrated curriculum and work-based learning demand longer stretches of time for both teachers and students than are usually allotted within a traditional high school schedule. So while school staffs may be on overload while figuring out and implementing integrated curriculum, demands for a new schedule can be so pressing that they find themselves taking on this piece of the system as well. So the work spirals around to other aspects of the system. In a very short time, a manageable amount of reform work can become overwhelming. As a Network this means several things: find ways to assist schools on systems issues, and think even smarter about time. How can we best support schools as they work on specific pieces of the system and on all of them at once?

The Network strategy also lacked consistency and sustained assistance with principals, superintendents, and school boards. In most cases these members were not part of the Network site teams and for this reason were often out of the loop. At the very least we needed to provide regular updating to principals and school boards through semiannual reports and evaluations. This information might have helped them better support and protect teams' emerging efforts from the instability that is so detrimental to burgeoning efforts. NCRVE needs to apply the strategy of both pressure and support to more layers of the system. For Network sites, having a national voice in NCRVE proved vital for legitimizing the sites' efforts to colleagues and community, yet this influence was somewhat limited. NCRVE is located on the West Coast whereas a high concentration of Network sites are located either on the East Coast or in the Midwest. For that reason, NCRVE had limited capacity to affect institutions and individuals that enabled or hindered sites' activities.



In future Network efforts, we need to direct more attention and assistance to the evaluation of sites' efforts. While evaluation

strategies were a component within the original plans for Tech Prep and integration, for a variety of reasons they failed to take shape in most sites. Chapters Five and Seven, Whole School Change and Postsecondary Partners, illuminate many reasons why this was so. Of primary significance was the evolving definition of the target population for Tech Prep first, and eventually school-to-work. With an evolving definition of the student clientele it was difficult to pinpoint who to assess over time. While this presents problems for evaluation design, some Network sites can also point to promising evaluation activities that helped them assess progress, talk with their communities and school boards, and identify areas that needed improvement (for some site examples, see Chapter Nine, Evaluation for Program Improvement). Evaluation can provide that stake in the ground in a climate of instability, and can help sites know how to continuously reshape their vision as grounded in evidence from their students' progress. Next time it will be important to provide more assistance with evaluation efforts.



CONCLUSION

From our experiences as the Urban Schools Network we have collected many pearls of wisdom about school change. Taken together, they richly illuminate the inner world of school reform. While there is never any shortage of "good" ideas for what schools might become, our understanding of what it takes to realize these visions is less clear. We hope, in this final chapter about the Urban Schools Network, our collective reflections will push us a bit closer to understanding how schools change, and ultimately how this knowledge can inform the work of educators and policy makers.

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